Truck-Trailer Repairer

1994

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Truck-Trailer Repairer

1994

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Occupational and Career Information Branch

Systèmes d'information sur les professions et normes professionnelles

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Disponible en français sous le titre : Réparateur/réparatrice de remorques de camions

The Canadian Council of Directors of Apprenticeship (CCDA) recognizes this occupational analysis as the national standard for the occupation of Truck-Trailer Repairer.

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Willi Strelau	British Columbia
Gord Wilson	New Brunswick

This analysis was prepared under the general direction of Lionel G. Dixon, Director General, Occupational and Career Information Branch. The planning, coordination and processing of the analysis were undertaken by Dono Bandoro, Occupational Standards Division, in conjunction with the following staff members: Stéphane J. Guèvremont, Laureen Marshall, Louise Massicotte, Louise Mitchell and François Turgeon.

OTHER RELATED OCCUPATIONAL TITLE

This analysis covers tasks performed by a truck-trailer repairer whose occupational title has been identified by some provinces and territories of Canada under Commercial Trailer Mechanic.

103-03009/

LIST OF PUBLISHED OCCUPATIONAL ANALYSES *

Aircraft Gas Turbine Engine Repair and Overhaul Technician (1992)

Aircraft Structural Repair Technician (1992)

Aquaculture Technician (1977)

Arts Administrator (1989)

Automotive Service Technician (1990)

Automotive Technician - Automatic Transmission (1990)

Automotive Technician - Electrical/Electronics (1992)

Automotive Technician - Engine Repair and Fuel Systems (1989)

Automotive Technician - Front-End (1989)

Automotive Technician - Manual Transmission, Driveline and Brakes (1990)

Baker (1991)

Blaster (Surface) (1987)

Boilermaker (1994)

Bricklayer (1993)

Cabinetmaker (1992)

Carpenter (1993)

Cement Finisher (1983)

Construction Electrician (1990)

Cook (1991)

Electrical Mechanic (1981)

Electronics Technician Vol. I (1986)
(Video Equipment)

Electronics Technician Vol. II (1986)
(Audio Equipment)

Electronics Technician Vol. III (1986)
(Computer Equipment)

Electronics Technician Vol. IV (1986)
(Office Equipment)

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* **Red Seal analyses are indicated in bold.**

Electronics Technician Vol. VI (1986)
(Communication Equipment)

Electronics Technician Vol. VII (1986)
(Signaling Equipment)

Electronics Technician Vol. VIII (1986)
(Navigation Equipment)

Electronics Technician Vol. IX (1986)
(Video Game Equipment)

Electronics Technician Vol. X (1987)
(CADD Equipment)

Electronics Technician Vol. XI (1987)
(CAM Equipment)

Electronics Technician Vol. XII (1987)
(Robotics Equipment)

Electronics Technician Vol. XIII (1987)
(Biomedical and Laboratory Equipment)

Electronics Technician Vol. XIV (1987)
(Industrial Process-Control Equipment)

Farm Equipment Mechanic (1981)

Floorcovering Installer (1991)

Glazier (1986)

Hairstylist (1992)

Heating (Gas and Oil) Servicer - Commercial and Industrial (1978)

Heavy Equipment Mechanic (1987)

Heavy Equipment Operator (1983)

Industrial Electrician (1987)

Industrial Instrument Mechanic (1988)

Industrial Mechanic (Millwright) (1988)

Insulator (Heat and Frost) (1993)

Ironworker (Generalist) (1993)

Lather (Interior Systems Mechanic) (1994)

Lineman (1988)

Logistics (1992)

Machinist (1992)

Major Electrical Appliance Repairer (1984)

Mobile Crane Operator (1992)

Motor Vehicle Body Repairer (1989)

Motor Vehicle Repairer (Truck and Transport) (1983)

New Home Builder and Residential Renovation Contractor (1992)

Oil and Solid Fuel Heating Mechanic (1986)

Painter and Decorator (1993)

Plumber (1989)

Power Engineer (1986)

Refrigeration and Air-Conditioning Mechanic (1989)

Roofer (1991)

Sheet Metal Worker (1990)

Sprinkler System Installer (1986)

Steamfitter-Pipefitter (1989)

Truck-Trailer Repairer (1994)

Tool and Die Maker (1992)

Welder (1989)

REQUESTS FOR THESE PUBLICATIONS SHOULD BE FORWARDED TO:

Head, Occupational Analysis Program
Occupational Standards Division
Occupational and Career Information Branch
Human Resources Development Canada
Place du Portage, Phase IV, 5th Floor
Hull, Quebec
K1A 0J9

FOREWORD

The first National Conference on Apprenticeship in Trades and Industries, held in Ottawa in 1952, recommended that the federal government be requested to co-operate with provincial apprenticeship committees and officials in preparing analyses of a number of skilled occupations. To this end, Human Resources Development Canada sponsors a program, under the guidance of the Canadian Council of Directors of Apprenticeship (CCDA), to develop a series of occupational analyses.

The Occupational Analysis Program has the following objectives:

- to identify and group the tasks performed by skilled workers in particular occupations;

- to identify those tasks that are performed by skilled workers in every province and territory;

- to develop instruments for use in the preparation of interprovincial standards "Red Seal" examinations and curricula for training leading to the certification of skilled workers;

- to facilitate the mobility, in Canada, of trainees and skilled workers; and

- to supply employers and employees, and their associations, industries, training institutions and governments with analyses of the tasks performed in particular occupations.

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GUIDE TO ANALYSIS

DEVELOPMENT OF ANALYSIS

A draft analysis is developed by a knowledgeable consultant who, with the assistance of a committee of industry experts in the field, identifies all the tasks performed in the occupation.

The draft is then assigned to occupational analysts at Human Resources Development Canada for review, translation and edit to ensure conformity with the nationally approved format.

The analysis is forwarded to provincial/territorial authorities for validation by specialists in the field. Their recommendations are assessed and incorporated into the final draft which also includes the identification of the common core tasks performed in the occupation.

The occupational analysis is published in both official languages.

STRUCTURE OF ANALYSIS

To facilitate the understanding of the nature of the occupation, the work performed is divided into the following divisions:

A. **BLOCK** - is the largest division within the analysis and reflects a distinct operation relevant to the occupation.

B. **TASK** - is the distinct activity that, combined with others, makes up the logical and necessary steps the worker is required to perform to complete a specific assignment within a "BLOCK".

C. **SUB-TASK** - is the smallest division into which it is practical to sub-divide any work activity and, combined with others, fully describes all duties constituting a "TASK".

Enabling Objectives

The element of skill and knowledge that an individual must acquire to perform the task adequately.

Trend

Any shifts or changes in technology that affect the sub-tasks are identified under this heading.

VALIDATION METHOD

At the request of the Canadian Council of Directors of Apprenticeship (CCDA), the Standardization Sub-Committee developed a method for the validation of the national Red Seal occupational analyses.

A draft of the analysis is sent to all provinces/territories for validation. Each jurisdiction rates the sub-tasks and applies percentage ratings to blocks and tasks. This method for the validation of the national occupational analyses identifies common core tasks across Canada for a specific occupation. This feature facilitates the weighting of the Interprovincial Red Seal examinations.

DEFINITIONS

YES:	the sub-task is performed.
NO:	the sub-task is not performed.
BLOCK %:	the average time a worker spends performing each block in a given year in relation to other blocks of the analysis, taking into consideration the complexity (importance plus difficulty) of the block. (See Appendices "B" and "C" for numerical and graphical representations of this specific occupation.)
TASK %:	the average time a worker spends performing each task in relation to other tasks within the block, taking into consideration the complexity (importance plus difficulty) of the task. (See Appendix "B" for numerical representation of this specific occupation.)
NV:	Not Validated by the province/territory.
ND:	Not Designated in that province/territory.

COMMON CORE

The criteria for determining common core are dependant on the performance of sub-tasks. If 70% of the responding jurisdictions (excluding NVs and NDs) perform the sub-task, it shall be considered common core.

In the analysis, Block A is reserved for safety practices. Since safety practices are a mandatory feature of all occupations, it is considered common core and ratings are not required.

Interprovincial Red Seal examinations are based on the common core identified through this validation process.

SCOPE OF ANALYSIS

A Truck-Trailer Repairer is a skilled mechanic who must possess a wide range of knowledge and skills. In addition to performing tasks relating to sheet metal repair and replacement and frame repair, this person must be able to diagnose and service suspension and braking systems, heating and refrigeration units, electrical and hydraulic systems, axles, hubs, tires and wheels, coupling units.

This trade is also called Trailer Mechanic and Semi-Trailer Mechanic. These individuals can find employment with fleet repair shops, trailer dealerships, general mechanical repair shops, manufacturers' repair shops and specialized repair shops.

Some of the tasks and sub-tasks associated with the analysis overlap with the responsibilities of other skilled trades. These would include Refrigeration Mechanic, Welders, Truck Body Repairer, Heavy Duty Mechanics and Transport Mechanics.

OBSERVATIONS AND TRENDS ARISING FROM ANALYSIS

The diversity of the work performed by members of this trade means that they will be exposed to future changes pertaining to diagnosing and servicing techniques associated with trailer systems and components.

With respect to trends relating to the future core skills associated with this trade, it is anticipated that the handling, storage and disposal of hazardous materials will continue to be an area of emphasis. Workers will also find themselves using and operating more metric tools, fasteners and specialized measuring devices. Additionally the trend towards an increased use of adhesives and sealants will persist. More composites and metal alloy materials are continuing to make their way into the industry and the specialized skills required to work with these are being updated.

The components and systems of trailers have also changed. The use of scanners, electronic testing equipment and on-board diagnostic computers will continue to influence the trade. There is more use being made of rebuilt and relinked brake shoes and a greater use of disc brakes, extra stroke chambers and anti-lock breaking systems (ABS). With respect to suspension systems, multi-axle suspensions and the addition of increased stabilizing to reduce roll-over continue to be the trend. Within five years, it is anticipated that the majority of trailers will use air ride suspension systems.

ANALYSIS

BLOCK A SAFETY

Task 1 **Demonstrates safe working practices and techniques.**

Trend: Towards more first aid training including cardiopulmonary resuscitation (CPR) and increasing concern with the handling, transport, storage and disposal of hazardous wastes.

	Sub-tasks	Enabling Objectives	Tools & Equipment
1.01	Identifies potential health and safety hazards.	knowledge of potential hazards, including exhaust fumes, explosive fumes, dust, sound levels, liquid and dry chemicals, electrical hazards, mechanical hazards and rotating devices knowledge of work practice hazards such as operation of shop equipment, power tools, cutting and grinding hand tools, air jacks, spring compressors, hoists, torches, compressors, pneumatic tools, air chisels, wrenches and hydraulic presses	
1.02	Recognizes and handles hazardous materials.	knowledge of hazardous materials commonly found in trailer repair centres knowledge of safety equipment required to handle hazardous materials knowledge of storage and disposal requirements for fluids, lubricants and solvents	
1.03	Complies with government safety standards/regulations and company policies and regulations.	knowledge of applicable safety acts, Workers' Compensation Board (WCB) regulations and provisions for reporting accidents and fires	

	Sub-tasks	Enabling Objectives	Tools & Equipment
		knowledge of the implications of the Work Place Hazardous Materials Information System (WHMIS)	
		knowledge of safe handling, storage and transportation of hazardous materials	
1.04	Wears personal protective equipment.	knowledge of types and uses of personal protection equipment	goggles, safety glasses, face shields, gas masks, ear muffs, gloves, aprons, safety boots
		ability to maintain and adjust personal protection equipment	
1.05	Operates emergency safety equipment.	knowledge of location of emergency safety equipment	fire extinguishers, fire blanket, stretchers, respirator, first aid station, eye wash station, fire hoses
		knowledge of operating procedures for emergency safety equipment	
		knowledge of emergency phone numbers	
1.06	Maintains good housekeeping.	knowledge of waste disposal procedures	
		ability to maintain cleanliness and order in work area	
		ability to safely store tools, shop equipment and loose objects	
		ability to remove hazards	
		ability to keep aisles clear	
		ability to clean up grease and oil spills	
		ability to dispose of waste materials	
1.07	Maintains tools and equipment.	knowledge of unsafe tools, such as mushroomed heads, split handles, frayed cables, bulged hoses, poor electrical connections and grounds	power tools, tester, air impact wrenches, hammers, guns

	Sub-tasks	Enabling Objectives	Tools & Equipment
		knowledge of power tool hazards	
		knowledge of the operating procedures for pneumatic tools	
		knowledge of spark proof tools	
		knowledge of tools and their safe application	
		ability to inspect air lines and compressors for leaks, damage or wear	
1.08	Practices safe lifting procedures.	knowledge of capacity of lifting devices and weight of components to be removed	slings, chains, hoists, hydraulic jacks, block and tackle
		knowledge of lifting procedures so that back injuries are avoided	
		knowledge of operating procedures for hoists and jacks	
		ability to sling, rig and secure loads	
		ability to determine if additional assistance is required	
1.09	Assures protection from fire hazards.	knowledge of methods of extinguishing different types of fires	
		knowledge of storage and handling of flammable materials, liquids and gases	
		knowledge of explosion and implosion hazards	
		ability to maintain clear exits at all times	
1.10	Reports injuries to foreman/woman or service manager.	knowledge of legal requirements to report injuries	

	Sub-tasks	Enabling Objectives	Tools & Equipment
		knowledge of company requirements to report injuries to WCB	
		knowledge of implications of not reporting injuries	
1.11	Completes written safety and injury reports.	knowledge of applicable safety acts	
		knowledge of regulations and provisions for reporting accidents and safety violations	
		knowledge of forms to be completed and information required for reports	
1.12	Applies first aid.	knowledge of basic first aid and location of first aid station	
		ability to locate first aid station	
		ability to apply basic first aid to injured person	
		ability to complete required reports/forms	
1.13	Follows confined space entry procedures.	knowledge of safety acts and regulations pertaining to safe entry procedures	oxygen tester, carbon dioxide tester, protective harness, respirator, personal protective clothing
		knowledge of types of safe entry testing equipment and clothing	
		ability to select and operate safe entry testing equipment	
		ability to assess testing results	

BLOCK B WORK PRACTICES AND PROCEDURES

Task 2 **Inspects trailer systems.**

Trend: Towards the increasing use of diagnostic computers and electronic test equipment to identify faults.

	Sub-tasks	Enabling Objectives	Tools & Equipment
2.01	Performs visual inspection of trailer.	knowledge of major trailer systems, their components and functions knowledge of symptoms caused by damage, wear or corrosion which would make a trailer unsafe or inoperable knowledge of inspection techniques and procedures ability to recognize defective parts ability to determine further inspection requirements	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

2.02	Performs operational check of the vehicle.	knowledge of operational check techniques and procedures knowledge of major trailer systems, their components and functions knowledge of symptoms caused by damage, wear or corrosion which would make a trailer unsafe or inoperable	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to recognize defective systems, components and parts	
	ability to determine repair requirements	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

2.03	Road tests trailers to duplicate symptoms identified by operator/ customer.	knowledge of laws and regulations pertaining to trailer operation	
		ability to operate a trailer	
		ability to describe symptoms using trade related terminology	
		ability to determine potential problem areas	
		ability to note in writing other problems/symptoms not described by customer for later analysis	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	no	yes	yes	ND	ND

2.04	Isolates faults to specific trailer system.	knowledge of diagnostic techniques and procedures	
		knowledge of most frequent repair requirements and inherent weaknesses, for each trailer system	
		ability to select diagnostic procedures and tests	

Sub-tasks					Enabling Objectives						Tools & Equipment	
					ability to relate performance problems to their cause and to particular trailer systems ability to interpret test result data							
NF	NS	PE	NB		PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes		ND	yes	yes	yes	yes	yes	ND	ND
2.05	Determines detailed diagnosis and repair requirements.				knowledge of repair requirements, and inherent weaknesses, for each trailer system ability to select detailed diagnostic and/or repair procedures to match requirement							
NF	NS	PE	NB		PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes		ND	yes	yes	yes	yes	yes	ND	ND
2.06	Checks technical service bulletins.				knowledge of known problems with particular makes, models and components of trailers knowledge of location and organization of service bulletins' systems knowledge of required repairs for particular makes and models of trailers and specific trailer components manufacturers							
NF	NS	PE	NB		PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes		ND	yes	yes	yes	yes	yes	ND	ND

Task 3 **Interprets information in manufacturers' service manuals and related service materials.**

Trend: Towards the increasing use of microfilm and computer based storage systems for services, parts and log data as well as increasing accessibility to on-line service support.

Sub-tasks	Enabling Objectives	Tools & Equipment
3.01 Locates service information.	knowledge of major trailer systems and their components	
	ability to locate service information such as manufacturers', jobbers and other service manuals, technical bulletins, service supplements, service publications/magazines, parts catalogues	
	ability to identify make, model and year of trailer	
	ability to identify make and model of trailer components such as power take-off (PTO) and braking systems	
	ability to locate vehicle identification numbers and manufacturers' labels	
	ability to describe layout of service manuals	
	ability to distinguish between major and minor index system of service manuals and other reference guides such as table of contents	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
3.02	Accesses service-related information from automated information retrieval systems.	knowledge of procedures for operating microfiche and computerized service information systems ability to access on-line manufacturers' assistance using modems, computer terminals and micro computers	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	no	yes	yes	ND	ND

3.03	Interprets service manuals and other related service material.	ability to identify repair techniques and procedures and to select test equipment, tools and replacement parts ability to sequentially organize repair procedures based upon diagrams and written instructions ability to interpret wiring, hydraulic and vacuum diagrams	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 4 **Specifies and services hand, cutting and power tools.**

Trend: Towards an increased use of metric tools and fasteners and a heavy reliance on pneumatic tools and equipment.

	Sub-tasks	Enabling Objectives	Tools & Equipment
4.01	Operates hand tools for the service and repair of trailers.	knowledge of standard imperial and metric tool sizes	wrenches, socket drive sets, hammers, punches, chisels, pliers,

Sub-tasks		Enabling Objectives	Tools & Equipment
		knowledge of the purpose, types, sizes, styles and operation of hand tools ability to select hand tools to meet job requirements	screwdrivers, torque wrenches, files, pry bars, clamps, vices

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

4.02	Operates pneumatic and electric power tools for the service and repair of trailers.	knowledge of the purpose, types, sizes and operation of power tools and accessories ability to use power tools and accessories ability to select and adjust power tools to meet job requirements	shields and guards, sanders, torque wrenches, air impact wrenches, hand drills, bench drills, hand grinders, bench grinders, sanders hacksaws, hole saws, files, chisels, drills, reamers, cutting pliers, scrapers, taps and die snips, air chisels

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

4.03	Operates cutting tools for the service and repair of trailers.	knowledge of the purpose, types, sizes and operation of cutting tools and accessories knowledge of material characteristics and cutting requirements ability to use cutting tools and accessories	

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to select and adjust cutting tools to meet material and job requirements	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

4.04	Maintains basic hand tools, cutting tools and air and electric power tools.	knowledge of tool maintenance and storage requirements knowledge of types and grades of cutting fluids and their use ability to lubricate, store and adjust hand tools, power tools and accessories ability to sharpen and reshape hand tools ability to insert blades into saws ability to clean files and reamers ability to sharpen chisels and drills ability to calibrate air and electric power tools	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 5 **Employs and maintains shop equipment.**

Trend: Towards an increased use of floor hoists in the repair of trailers.

	Sub-tasks	Enabling Objectives	Tools & Equipment
5.01	Operates jacking and lifting equipment.	knowledge of techniques and procedures for operating, lifting and jacking equipment knowledge of techniques and procedures for slinging and rigging knowledge of operating procedures for jacking and lifting equipment ability to select and set up lifting and jacking equipment ability to clean, lubricate and adjust jacking and lifting equipment	floor hoists, chain and cable hoists, hydraulic crane, engine repair stand, slings and riggings, hydraulic jack, jack stands

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

5.02	Operates cleaning and auxiliary equipment.	knowledge of operating techniques and procedures for cleaning equipment knowledge of protective equipment requirements knowledge of preparation of components and assemblies for cleaning knowledge of techniques and procedures for operating brake cleaning equipment ability to select cleaning process and techniques for trailer components	steam cleaner, caustic cleaning tank, sandblaster, glass bead machine, air compressors

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
5.03	Operates and maintains general shop equipment.	knowledge of operating techniques and procedures knowledge of cleaning techniques and procedures knowledge of lubricating techniques and procedures knowledge of adjusting techniques and procedures ability to select cleaning materials ability to clean shop equipment without damaging parts ability to select lubricating materials ability to apply lubricant	grinders, clamping devices, drill presses, drum lathes, air compressors, fuel retrieval and storage systems

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

5.04	Operates hydraulic and mechanical pullers.	knowledge of puller operation techniques and procedures ability to select puller for particular job ability to set up puller ability to remove and wrap bearings	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 6 **Employs and maintains dimensional measuring devices.**

Trend: Towards the increased use of metric measuring devices, specialized measuring devices and test equipment.

	Sub-tasks	Enabling Objectives	Tools & Equipment
6.01	Operates precision measuring devices.	knowledge of purpose, application, design, operation and calibration techniques for precision measuring devices ability to interpret measuring devices ability to distinguish between metric and imperial tools	micrometers, small hole gauges, vernier callipers, telescoping gauge, straight edge, feeler gauge

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
6.02	Operates vacuum and pressure gauges.	knowledge of different types of vacuum and pressure gauges such as air and gas knowledge of capacity, calibration and tolerances of vacuum and pressure gauges knowledge of purpose, application, design and operation of dial indicators and attachments ability to distinguish between metric and imperial tools ability to operate liquid, air and gas vacuum and pressure gauges	universal gauge, cylindrical gauge, connecting rod gauge

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
6.03	Operates non-precision measuring devices.	knowledge of purpose, application, design and operation of non-precision measuring devices ability to distinguish between metric and imperial tools	rulers, inside callipers, outside callipers

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

6.04	Maintains measuring devices.	knowledge of the techniques to determine accuracy of measuring devices knowledge of handling and storage requirements and conditions ability to check devices for accuracy and calibration ability to make adjustments to measuring devices ability to store measuring devices to protect against damage	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 7 **Operates and maintains oxyacetylene, arc metal inert gas (MIG) and tungsten inert gas (TIG) welding equipment.**

Trend: Towards a greater use of composites and metal alloys.

	Sub-tasks	Enabling Objectives	Tools & Equipment
7.01	Identifies procedures for joining, bonding or	knowledge of different types of bonding materials	

	Sub-tasks	Enabling Objectives	Tools & Equipment
	fastening composite and light alloy material.	knowledge of characteristics of bonding materials such as melting point, inability and reactions to heat or chemicals	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	no	yes	ND	ND

7.02	Demonstrates safe practices in using, storing and handling oxyacetylene equipment.	knowledge of personal protective equipment including clothing, gloves, eye protection knowledge of current safety regulations in storing and handling oxyacetylene	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	no	yes	ND	ND

7.03	Sets up welding equipment.	knowledge of design, function and application of components of oxyacetylene equipment knowledge of gases, colour codes and thread connections knowledge of single and double stage regulators, pressure settings, loose fittings and flash arrester valves, types of tips and nozzles ability to test oxyacetylene equipment for leaks ability to select welding equipment and accessories to meet job requirements	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	no	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
7.04	Performs cutting with oxy-acetylene equipment.	knowledge of types of flame and effects of heating ability to determine type of process welding, brazing or cutting best suited to job ability to prepare metal surface for joining ability to select welding tip, pressure and flame for specific operation ability to weld and braze materials, heat metal for shrink fits and cut various thickness of metal ability to clean orifices with tip cleaners, spark lighter	spark lighter, eye protection

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	no	yes	ND	ND

7.05	Installs cables, lugs, electrode holder, ground clamp and electrode.	knowledge of design, function and application of components of arc welding and equipment knowledge of cable size, type of holder and clamps, material to be welded and Canadian Standards Association (CSA) standard for arc welding electrode knowledge of installation techniques ability to select and install cables, lugs, electrode holders, ground clamps and electrodes without damaging equipment	knife, wrenches, Allen wrenches, hammer

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	no	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
7.06	Performs welding operations with standard arc welding equipment.	knowledge of standard arc welding techniques and procedures ability to prepare metal surfaces for welding, adjust voltage and amperage for job application on alternating current (AC) and direct current (DC) welding machines ability to strike arc and produce single and multi-pass fillet, welding in all positions	grinder, wire brush, chipping hammer

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	no	yes	ND	ND

7.07	Installs feed wire and gas cylinders in MIG and TIG welders.	knowledge of different types and uses of gases knowledge of installation techniques and procedures ability to select feed wires and gas cylinders ability to install feed wires without damage ability to install gas cylinders on MIG and TIG welders	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	no	yes	ND	ND

7.08	Perform MIG and TIG welding operations.	knowledge of MIG and TIG welding techniques and procedures knowledge of safety precautions to be used in relation to the operation of welding equipment	hand shield, leather gloves, leggings

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to adjust amperage, set feed speed, gas pressures and prepare welding surfaces	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	no	yes	ND	ND

Task 8 **Inserts fastening and sealing devices, wires and connectors.**

Trend: Increased use of adhesives and sealants and shielded wiring.

Sub-tasks	Enabling Objectives	Tools & Equipment
8.01 Installs fasteners and locking devices.	knowledge of the types, styles, purpose and sizes of fastening devices	splines, Allen wrenches, clamps, wrenches, pliers, hammers, screwdrivers, torque head driver
	knowledge of installation techniques and procedures for locking fastening devices, torque yield and stretch levels	
	knowledge of galvanic corrosion caused by dissimilar metals	
	knowledge of anaerobic and aerobic locking and sealing chemicals	
	ability to interpret specification charts for fastening devices such as general and special applications, torque requirements, torque dimensions and performance criteria	
	ability to correlate with wrench sizes	
	ability to select mechanical and chemical locking devices to be	

Sub-tasks				Enabling Objectives						Tools & Equipment	
				compatible and reliable with job specifications							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
8.02	Installs sealing devices.			knowledge of types, styles and sizes of sealing devices						seals, gaskets, sealants	
				knowledge of installation procedures for sealing devices							
				knowledge of conditions under which sealing devices are subjected such as temperature, pressure, compatibility and conformability							
				knowledge of manufacturers' specifications for sealing devices							
				knowledge of anaerobic and aerobic sealants							
				ability to select sealing devices							
				ability to install sealing devices without damage to surrounding parts or components							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
8.03	Restores threads on fastening devices.			knowledge of threading tools and operating techniques and procedures						taps, dies, thread chasers, thread files, heli-coil, thread inserts	
				ability to clean, lubricate and maintain threading tools							

Sub-tasks		Enabling Objectives		Tools & Equipment
		ability to select and install tools to meet fastener requirements		

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

8.04	Removes broken bolts and studs.	knowledge of techniques and procedures for removal of broken fasteners ability to identify damaged or defective bolts and studs		taps, wrenches, pliers, drills, extractors

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

8.05	Installs electrical wires and connectors.	knowledge of construction and composition of wires, connectors and harnesses required for specific applications such as lighting, charging computer, communications and sensors knowledge of construction and composition of harnesses such as multiplexing wires, connectors, wire strippers, wire splicers, side cutters, pliers, screwdrivers knowledge of sealing techniques such as O-rings, dial electric grease and silicon knowledge of special application connectors knowledge of construction and operation of welding lock connectors, card edge, bullet	

Sub-tasks				Enabling Objectives				Tools & Equipment			
				connections and current OEM (original equipment manufacturer) connectors ability to select and install electrical wires/connectors and shields without damage to surrounding area or components							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
8.06	Performs soldering operations with standard soldering equipment.			knowledge of function and application of soldering equipment knowledge of soldering techniques and procedures ability to select solder and fluxes ability to select heating method for job requirements				propane torch, soldering iron			
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
8.07	Performs heat shrink operations for wiring and connecting repairs.			knowledge of procedures to conduct heat shrink and operations for special and twisted wires ability to select method for job requirements				hot air gun, heat shrink tape and heat shrink tubing			
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 9 **Isolates electrical/electronic system faults.**

Trend: Towards the increased use of scanners, electronic test equipment and diagnostic computers to isolate system faults.

	Sub-tasks	Enabling Objectives	Tools & Equipment
9.01	Interprets service manuals and other related service material.	ability to interpret service manuals and other related service materials to identify repair procedures and to select test equipment, tools and replacement parts ability to sequence operation of repair ability to interpret wiring, hydraulic and vacuum diagrams ability to understand written and diagrammatic repair sequences	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

9.02	Utilizes on-board diagnostics.	knowledge of location of trailer diagnostic display knowledge of operating procedures for trailer test equipment ability to activate trailer diagnostic test equipment and interpret read out	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
9.03	Operates electronic test equipment.	knowledge of types of electronic test equipment such as voltmeters, ohmmeters, ammeters, multimeters and oscilloscopes ability to select electronic test equipment to meet component requirements ability to verify equipment operation	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

9.04	Verifies test points.	knowledge of test point verification procedures ability to interpret diagnostic fault codes or descriptions ability to demonstrate back-probing techniques to identify fault(s)	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 10 **Complies with government and company policies and procedures, guidelines and standards.**

Trend: Towards more regulations and policies regarding the servicing of trailers.

	Sub-tasks	Enabling Objectives	Tools & Equipment
10.01	Identifies personal liability of trailer repairer.	knowledge of service and parts warranty limits such as time, mileage and degree of reimbursement	

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of the consequences of replacement/repair of defective parts or poor quality service procedures knowledge of legal implications of ineffective repairs that result in an accident knowledge of the consequences of replacing non-defective parts or falsifying repairs performed knowledge of the consequences of not reporting safety hazards on a trailer that may then be involved in an accident	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Sub-tasks	Enabling Objectives	Tools & Equipment
10.02 Interprets provincial laws, guidelines and regulations.	knowledge of the laws and regulations governing the business and trade practices as employed in the trucking industry such as highway traffic and safety acts, environmental protection acts and health and safety acts knowledge of WHMIS guidelines for safety in the workplace knowledge of laws and regulations regarding warranties on parts and service and the impact of consumer protection legislation knowledge of mechanics lien act	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
10.03	Interprets company procedures, policies and guidelines.	knowledge of the repair ordering systems and their related sub-systems and the required personnel and document controls knowledge of the scheduling and daily operating control methods employed by a service shop knowledge of company policies regarding warranty of parts and service, use of used parts and customer relations	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 11 **Services slider and fixed suspension.**

Trend: Towards increased usage of air ride suspension within five years, the greater use of multi-axle suspensions and greater stabilizing in suspension to reduce roll over.

	Sub-tasks	Enabling Objectives	Tools & Equipment
11.01	Visually checks suspension system.	knowledge of suspension failures such as broken springs, air bag leaks, cracked hangers knowledge of design characteristics of suspension system knowledge of inspection techniques and procedures ability to select and position suspension	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to check for worn or damaged parts	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

11.02	Evaluates alignment.	knowledge of suspension operation and durability knowledge of alignment inspection techniques and procedures knowledge of types of suspension systems ability to interpret driver's report for leaning and dog tracking ability to recognize tire wear ability to recognize worn bushings ability to recognize damaged components such as U-bolts, centre bolts and axle connections	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

11.03	Replaces slider suspension.	knowledge of slider removal and installation techniques and procedures knowledge of types, weights and sizes of jacking tools ability to operate hydraulic porto-power	air impact wrench and sockets, hydraulic porto-power, wrenches torches, TIG/MIG/arc air welder

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to set up jacking tools and stands and operate overhead cranes ability to fasten safety latches and slider controls ability to connect air system ability to verify a good weld	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

11.04	Replaces fixed suspension.	knowledge of fixed suspension removal and installation techniques and procedures knowledge of types, weights and sizes of jacking tools knowledge of types and sizes of fasteners ability to operate hydraulic porto-power ability to set up jacking tools and stands and operate overhead cranes ability to select and fasten bolts ability to connect air line ability to identify location of hangers ability to install wear plates on hangers ability to replace cross members	air impact wrench and sockets, hydraulic porto-power, wrenches, torches, TIG/MIG/arc air welder, leather apron, welder's helmet, gloves, goggles

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to replace air system components ability to verify a good weld	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

11.05	Repairs slider suspension components.	knowledge of slider suspension component repair techniques and procedures knowledge of damage and/or wear characteristics and limits ability to remove sliding rails ability to recognize deterioration, cracks and hole wear on rails ability to reinforce/replace rail unit ability to boss (plate) holes on outside rail ability to remove and identify location of hangers ability to replace/reinforce hangers ability to reinforce cross members ability to install wear plates on hangers ability to repair hanger cracks ability to verify a good weld	TIG/MIG/arc air welder, hand grinder, arc air cutter, gouging tip, cut-off saw, plasma cutter, C-clamps, bar clamp, hydraulic porto-power, come-along, chains, cinches, squares, safety glasses, tape measure, hammer, sledge hammer, gloves, soapstone

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
11.06	Repairs fixed suspension components.	knowledge of repair techniques and procedures for fixed suspension components knowledge of the operation of heating torch knowledge of damage and/or wear characteristics and limits ability to operate porta pump ability to recognize main frame damage ability to straighten main frame ability to reinforce/replace main frame ability to remove and replace hangers ability to reinforce hangers ability to repair hanger cracks ability to reinforce cross members ability to identify location of cross members	torches, welding, hydraulic porto-power, electric grinding tools, pneumatic hand grinder, arc air cutter, gouging tip, cut-off saw, plasma cutter, C-clamps, bar clamp, come-along, chains, cinches, squares, tape measure, hammer, sledge hammer, straight level, soapstone, pry bars

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

11.07	Replaces bushings.	knowledge of bushing removal and installation techniques and procedures knowledge of types of lubricants and application techniques and procedures	air impact wrench and sockets, portable hydraulic press, hammers, electric grinding tools, pneumatic grinding tools

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to recognize worn bushings	
		ability to operate portable hydraulic press	
		ability to select lubricants	
		ability to clean component with file/chisel	
		ability to align bushing with hole	
		ability to apply required pressure to press bushing	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

11.08	Torques fasteners.	knowledge of the use of torque wrenches and torque multiplier	torque wrench, torque multiplier, ballpeen hammer, sledge hammer, aligning bar, air impact wrench and sockets, hand wrenches
		knowledge of types and sizes of fasteners	
		knowledge of the torquing specifications, procedures and sequence	
		ability to select and install fasteners	
		ability to operate foot pound torque wrench	
		ability to operate inch pound torque wrench	
		ability to operate torque wrench multiplier to obtain calculation	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to advise client of retorquing time	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 12 Services air suspension systems.

Trend: Towards increased usage of air ride suspension within five years, the greater use of multi-axle suspensions and greater stabilizing in suspension to reduce roll over.

Sub-tasks	Enabling Objectives	Tools & Equipment
12.01 Replaces air bag.	knowledge of design characteristics and manufacturer's specifications for servicing air bag	pneumatic air wrench, torch, torque wrench, air impact wrench, sockets, wrench
	knowledge of air bag removal and replacement techniques and procedures	
	knowledge of sizes and types of fasteners	
	knowledge of fasteners fitting removal, installation and torquing techniques and procedures	
	ability to locate manufacturer's number on air bag	
	ability to open air lines from air bag to height control valve	
	ability to remove fasteners and fittings	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to inspect air bag for leaks/damage	
	ability to select new air bag for installation	
	ability to select and install fasteners and secure air bag to frame and suspension component	
	ability to conduct leak detection tests using soap and water	
	ability to hook-up air lines	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

12.02	Adjusts height control valve.	knowledge of design characteristics and manufacturer's specifications for ride height	hand wrenches
		knowledge of operation of levelling valve and adjustment techniques and procedures	
		ability to interpret manufacturer's specifications to identify ride height	
		ability to adjust connecting link	
		ability to adjust screw on levelling valve	
		ability to synchronize height control valves on two valve units	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
12.03	Replaces height control valve.	knowledge of the removal and installation techniques and procedures for height control valve knowledge of height control valve adjustment techniques and procedures knowledge of bolt torquing specifications, procedures and sequence knowledge of sizes and types of fasteners ability to interpret manufacturer's specifications to identify ride height ability to select and fasten bolts, air lines and connecting link ability to replace link bushings ability to torque bolts to specifications	hand wrenches, safety glasses, torque wrench

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

12.04	Replaces shock absorbers or components.	knowledge of shock absorber removal and installation techniques and procedures knowledge of sizes and types of shock absorbers knowledge of sizes and types of fasteners knowledge of torquing specifications, procedures and sequence	torch, pneumatic wrench and sockets, wrenches, pry bar

Sub-tasks					Enabling Objectives						Tools & Equipment	
					ability to locate shock absorbers							
					ability to operate torch							
					ability to select and fasten shock absorbers							
					ability to select appropriate torque							
					ability to position shock absorber							
	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
	ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
12.05	Repairs shock absorbers or components.				knowledge of shock absorber removal techniques and procedures						air impact wrench, sockets, torque wrench, hammer	
					knowledge of sizes and types of shock absorbers							
					knowledge of sizes and types of fasteners							
					knowledge of repair techniques and procedures for shock absorbers or components							
					ability to recognize worn bushings							
					ability to select and replace bushings							
					ability to position shock absorber							
	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
	ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
12.06	Repairs axle connection.				knowledge of axle repair techniques and procedures						air impact gun, torches,	

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of types of suspension systems	torque wrench, arc air welder
	knowledge of sizes and types of axle connections	
	knowledge of welding techniques and procedures for removal and replacement	
	knowledge of damage and/or wear characteristics of axles	
	ability to operate torches	
	ability to remove U-bolts	
	ability to weld cracks and wears on axle seat	
	ability to select and install fasteners	
	ability to replace axle seat	
	ability to replace axle wrappers	
	ability to replace axle pads	
	ability to remove, repair and replace welds	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

12.07	Aligns air ride suspension.	knowledge of alignment techniques and procedures	laser alignment system, plumb bob, welding equipment
		knowledge of realignment location (both sides or one side)	
		knowledge of levelling techniques and procedures	

Sub-tasks				Enabling Objectives						Tools & Equipment	
				knowledge of the function of alignment tools such as plumb bob and axle adapters ability to air arc to loosen alignment blocks ability to set up and operate a laser alignment system ability to measure and level axle ability to align axle to king pin							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
12.08	Replaces pressure protection valve.			knowledge of pressure protection valve removal and installation techniques and procedures knowledge of air line hook-up techniques and procedures knowledge of testing techniques and procedures ability to drain air supply ability to drain air suspension ability to fasten pressure protection valve ability to hook-up air line ability to test pressure protection valve						wrenches	
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
12.09	Replaces air pressure gauge.	knowledge of air pressure gauge removal and installation techniques and procedures knowledge of operation of air gauge knowledge of types and specifications for air ride system ability to drain air supply ability to install gauge on pipe fittings ability to interpret air pressure gauge readings ability to connect air lines	wrenches, air compressor

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

12.10	Replaces air control valve.	knowledge of air system, air control valve removal and installation techniques and procedures knowledge of operation of air control valve knowledge of types and specifications for air ride systems ability to test valve for operation ability to install valve ability to connect air lines	wrench, compressor

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
12.11	Checks auxiliary control systems.	knowledge of operating specifications for auxiliary control systems knowledge of auxiliary control systems diagnostic techniques and procedures knowledge of types of valves and their operation ability to test scale gauge, dump system and lift system ability to test control system on steering axle and freewheeling valve ability to check and identify air leaks	wrenches, air compressor, hammer, soap and water

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

12.12	Splices air lines.	knowledge of removal and installation techniques and procedures for air lines knowledge of air line leak detection techniques and procedures knowledge of splicing techniques and procedures knowledge of types and sizes of fittings and their uses knowledge of types and sizes of lines ability to conduct leak detection tests	knife, compressor, wrenches, soap and water

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to select and install fittings	
	ability to section air line	
	ability to install air line	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	no	yes	ND	ND

12.13	Replaces air lines.	knowledge of removal and installation techniques and procedures for air lines	wrenches, soap and water, compressor
		knowledge of types and sizes of fittings and their use	
		knowledge of type and sizes of air lines	
		knowledge of types and sizes of clamps	
		knowledge of air line leak detection techniques and procedures	
		ability to select air lines	
		ability to connect air line to valve/glad hand	
		ability to select and fasten air line to body	
		ability to select and install clamps	
		ability to conduct leak detection tests for air leaks	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
12.14	Replaces air tanks.	knowledge of air tank removal and installation techniques and procedures knowledge of types of air tanks and related capacities knowledge of leak testing techniques and procedures for air tank systems knowledge of types and sizes of fasteners ability to test air tanks for leaks ability to select fasteners and bolt air tank to brackets ability to reinstall air lines to valves ability to retest air tank system for leaks	wrenches, compressor, soap and water

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 13 Services rubber block suspension system.

Trend: Towards increased usage of air ride suspension within five years, the greater use of multi-axle suspensions and greater stabilizing in suspension to reduce roll over.

	Sub-tasks	Enabling Objectives	Tools & Equipment
13.01	Replaces load cushion.	knowledge of rubber block suspension systems removal and installation techniques and practices	

knowledge of types and sizes of rubber block suspension systems

knowledge of load cushion removal techniques and procedures

ability to operate lifting and jacking equipment

ability to inspect load cushion for compression of rubber and deterioration

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

13.02 Replaces load cushion attachment.

knowledge of rubber block suspension system removal and installation techniques and procedures

knowledge of load cushion attachment removal and installation techniques and procedures

knowledge of damage or wear characteristics of load cushions

ability to operate lifting and jacking equipment

ability to inspect load cushion attachment for corrosion, wear or damage

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
13.03	Repairs load cushion alignment pin.	knowledge of purpose and location of load cushion alignment pin knowledge of load cushion alignment pin removal and installation techniques and procedures knowledge of damage or wear characteristics of alignment pins ability to inspect alignment pin for cracks, excessive wear, bends and shearing ability to reweld alignment pins	grinder, arc welder, TIG/MIG welder, safety glasses, burning goggles, welder's helmet, gloves

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

13.04	Replaces wishbone/ tracking arm.	knowledge of purpose and function of wishbone tracking arm knowledge of suspension specifications and replacement techniques and procedures for tracking arms knowledge of inspection procedures for cracks, bent, worn, or missing arm knowledge of wear limits for bushings and ball sockets knowledge of types of adhesives for bushings ability to operate grinder ability to secure axle to maintain alignment	grinders, oxy-fuel torch, air impact wrench

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to select and apply adhesives	
	ability to identify bushings and ball sockets that need replacing	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

13.05	Welds small cracks in wishbone/tracking arm.	knowledge of welding techniques and procedures knowledge of repair limits and specifications for cracks knowledge of grinding techniques and procedures ability to assess cracks and select cracks for repairs ability to weld cracks ability to verify a good weld ability to grind welds	oxy-fuel torch, grinder, air impact wrench, hand wrenches, air compressor, MIG/TIG welder

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	no	yes	ND	ND

13.06	Replaces torque arm.	knowledge of specifications relating to rating capacity and wheel base of suspensions and length of torque arm knowledge of torque arm removal and installation techniques and procedures	air impact wrench, torque wrench, punch, aligning bar, wire feed grinder, arc air cutter, plasma cutter

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of wear limits for torque arms (bent, worn)	
	knowledge of torquing specifications, procedures and sequence	
	knowledge of types of torque arms, such as fixed or solid and adjustable	
	ability to inspect torque arm suspension connections and identify unacceptable connections	
	ability to remove and install torque arm	
	ability to align axle to king pin	
	ability to repair torque arm suspension connection	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

13.07	Replaces torque arm bushings.	knowledge of types of bushings including oversized and standard	air impact wrench, ballpeen hammer, chisels, punch, aligning bar, oxy-fuel torch, torque wrench
		knowledge of torque arm removal and installation techniques and procedures	
		knowledge of torquing specifications	
		ability to inspect torque arm suspension connections and identify unacceptable connections	
		ability to replace torque arm suspension connections	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to align axle to king pin	
	ability to work adjustable radius rods	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

Task 14 Services walking beam suspension systems.

Trend: Towards increased usage of air ride suspension within five years, the greater use of multi-axle suspensions and greater stabilizing in suspension to reduce roll over.

Sub-tasks	Enabling Objectives	Tools & Equipment
14.01 Repairs walking beam.	knowledge of beam repair techniques and procedures	hydraulic porto-power, air impact wrench, hydraulic jacks
	knowledge of beam specifications such as length, bushing size	
	knowledge of wear/damage limits for walking beam	
	knowledge of torquing specifications, procedures and sequence	
	ability to inspect walking beam for bends, corrosion, damage and wear	
	ability to remove and install bushings	
	ability to service walking beam	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
14.02	Replaces walking beam.	knowledge of beam specifications such as length and bushing size knowledge of removal and installation techniques and procedures and repair sequence knowledge of wear/damage limits for walking beam knowledge of torquing specifications, procedures and sequence knowledge of types and sizes of fasteners ability to inspect walking beam for bends, corrosion, damage and wear ability to measure walking beam to confirm length ability to select fasteners and secure walking beam	hydraulic porto-power, oxy-fuel torch, air impact wrench, sledge hammer, pry bars, hydraulic jacks, torque wrench

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

14.03	Repairs walking beam assembly.	knowledge of wear and damage limits for walking beam assembly knowledge of repair procedures and sequence of repair for walking beam knowledge of walking beam assembly removal and installation techniques and procedures knowledge of steel gauge structural characteristics and composition	oxy-fuel torch, grinder, arc air cutter, plasma cutter

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of reinforcing procedures for walking beam assembly ability to weld cracks and verify a good weld ability to reinforce corroded components ability to build up worn areas and grind, heat and straighten webs and flanges	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

14.04	Replaces walking beam assembly.	knowledge of walking beam assembly removal and installation techniques and procedures knowledge of specifications for walking beam assembly length, construction and rating capacity knowledge of damage or wear characteristics of the assembly and axle connection ability to inspect walking beam assembly for cracks, wear and corrosion ability to inspect axle connection for bends, wear and breakage ability to assess wear and corrosion to assess against manufacturer's corrosion/wear limits specifications	air impact wrench, oxy-fuel torch, welder, arc air or plasma cutter, ballpeen hammer, sledge hammer, pry bars

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
14.05	Repairs axle connection.	knowledge of damage or wear characteristics for axle connections ability to replace wear plates, rubber pads and pin ability to replace U-bolts ability to weld small cracks and verify a good weld	arc air cutter, plasma cutter, oxy-fuel torch, C-clamps, welder, tape measure, level, grinder, air impact wrench

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

14.06	Replaces axle connection.	knowledge of axle connection removal and installation techniques and procedures knowledge of specifications for type and wear factors/limits of connection knowledge of torquing specifications, procedures and sequence ability to inspect axle connection for cracks, breakage and wear knowledge of components of axle connection such as wear plates, caps, U-bolts and rubber pads ability to position axle connection ability to weld connection to axle beam and verify good weld	arc air cutter, plasma cutter, oxy-fuel torch, C-clamps, welder, tape measure, level, grinder, air impact wrench

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
14.07	Replaces trunnion shaft assembly.	knowledge of removal and installation techniques and procedures and repair sequence knowledge of specifications regarding sizes and length knowledge of fastening procedures for trunnion shaft assembly knowledge of torque specifications, procedures and sequence ability to inspect trunnion shaft assembly for wear, bends, loose bushings, cracks and loose fasteners ability to replace the trunnion shaft frame connection and trunnion walking beam connection ability to repair trunnion shaft frame connection and trunnion walking beam connection by welding cracks, reinforcing and straightening ability to replace trunnion shaft	hydraulic porto-power, hydraulic jack, plasma cutter, arc air cutter, pneumatic wrench, socket, torque wrench, tape measure

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

Task 15 Services spring suspension system.

Trend: Towards increased usage of air ride suspension within five years, the greater use of multi-axle suspensions and greater stabilizing in suspension to reduce roll over.

	Sub-tasks	Enabling Objectives	Tools & Equipment
15.01	Replaces spring assembly.	knowledge of specifications for type, size, capacity and construction of spring assembly knowledge of removal and replacement procedures and sequences for spring suspension system knowledge of size and types of fasteners knowledge of torquing specifications, procedures and sequence ability to remove U-bolts and rebound bolts ability to select and install and torque U-bolts and rebound bolts ability to retorque bolts	torque wrench, pry bar, oxy-fuel torch, tape measure, air impact wrench

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.02	Repairs multi-leaf assembly.	knowledge of construction of multi-leaf assembly knowledge of removal and installation techniques and procedures for bolts and straps knowledge of assembly damage and/or wear characteristics knowledge of torquing techniques, procedures and specifications ability to replace centre bolt	clamps, torch, torque wrench, air impact wrench, aligning bar

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to replace leaf alignment straps	
	ability to inspect centre bolts and straps for breakage, misalignment, loss of spring pack	
	ability to torque centre bolts	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.03	Replaces equalizers.	knowledge of equalizer removal and installation techniques and procedures	arbour press, hydraulic porto-power, sledge hammer, torch, air impact wrench, punch, chisels, aligning bar
		knowledge of specifications for equalizer types spread, fatigue, rust, corrosion, and minor cracks	
		knowledge of equalizer damage and/or wear characteristics	
		knowledge of torquing specifications, procedures and sequence	
		ability to select, install and torque bolts	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.04	Repairs equalizers.	knowledge of equalizer repair techniques, procedures and repair sequences for equalizers	arbour press, stationary press, hydraulic porto-power, sledge hammer, MIG/TIG

Sub-tasks					Enabling Objectives						Tools & Equipment
					knowledge of torquing specifications, procedures and sequence knowledge of damage and/or wear characteristics of equalizers and components ability to weld minor cracks and verify good weld ability to replace bushings ability to replace spring wear plates ability to select and replace bolts and/or shafts						welder, grinder, alignment bars, air impact wrench, wrenches, sockets, goggles, glasses, punch, chisels, oxy-fuel torches

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.05	Repairs equalizer hangers/guides.	knowledge of hangers/guides techniques repair procedures and sequence of repair knowledge of hangers/guides damage and/or wear characteristics ability to build up worn areas with weld ability to install reinforcing plate ability to weld minor cracks and verify a good weld ability to install bosses on hangers/guides, valve shafts or radius rods attachment	MIG/TIG welders, grinder, arc air cutter, C-clamps, aligning bar, hydraulic porto-power

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to straighten equalizer hangers	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.06	Replaces equalizer hangers/guides.	knowledge of suspension specifications knowledge of hangers/guides damage and/or wear characteristics knowledge of removal and installation techniques and procedures and repair sequence for equalizer hangers/guides knowledge of sizes and types of fasteners ability to inspect hangers for corrosion, wear and damage ability to select and fasten equalizer hanger to frame by bolting or welding ability to position fasteners on frame cutter	torch, plasma cutter, arc air cutters, tape measure

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.07	Repairs spring seat and bottom axle bracket.	knowledge of repair techniques, procedures and sequences for spring seat and bottom axle bracket	tape measure, C-clamps, torque wrench, grinder, welder, torch, arc air cutter

Sub-tasks		Enabling Objectives	Tools & Equipment
		knowledge of torquing specifications, procedures and sequence knowledge of damage and/or wear characteristics ability to inspect spring seat and both axle brackets ability to weld minor cracks and verify a good weld ability to build up worn areas ability to install bosses for torque rod attachment ability to straighten spring seat on both axle brackets	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.08	Replaces spring seat on bottom axle bracket.	knowledge of location, function and specifications for spring seat knowledge of seat removal and installation techniques and procedures knowledge of damage and/or wear characteristics knowledge of sizes and types of fasteners ability to fasten spring seat to axle using U-bolts or welds	grinder, welder, air impact wrench, oxy-fuel torch, tape measure, torque wrench

Sub-tasks					Enabling Objectives						Tools & Equipment	
					ability to position spring seat on axle							
NF	NS	PE	NB		PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes		ND	yes	yes	yes	yes	yes	ND	ND
15.09	Replaces top spring plate.				knowledge of removal and installation techniques and procedures for top spring plate knowledge of spring plate wear/damage characteristics knowledge of torquing specifications, procedures and sequence ability to inspect spring plate for corrosion, bends and cracks ability to secure and torque spring plate						air impact wrench, torque wrench, oxy-fuel torch, pry bars, alignment bars, ballpeen hammer	
NF	NS	PE	NB		PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes		ND	yes	yes	yes	yes	yes	ND	ND
15.10	Repairs front/rear spring hangers.				knowledge of techniques, procedures and sequence of repair for front/rear spring hangers knowledge of hanger wear/damage characteristics ability to build up worn areas with weld ability to install reinforcing plate						MIG/TIG welders, grinder, oxy-fuel torches, arc air cutter, C-clamps, aligning bar, hydraulic porto-power	

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to weld minor cracks and verify a good weld	
		ability to install bosses on hangers/guides, valve shafts or radius rods attachment	
		ability to straighten spring hangers	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.11	Replaces front/rear spring hangers.	knowledge of hanger removal and installation procedures and repair sequence	torch, plasma cutter, arc air cutters, tape measure
		knowledge of suspension specifications	
		knowledge of spring hanger wear/damage characteristics	
		knowledge of size and types of fasteners	
		ability to inspect hangers for corrosion, wear and damage	
		ability to position fasten spring hanger to frame by bolting or welding	
		ability to select and position fasteners on frame cutter	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.12	Replaces torque arm.	knowledge of specifications relating	air impact wrench,

Sub-tasks	Enabling Objectives	Tools & Equipment
	to rating capacity and wheel base of suspensions and length of torque arm	torque wrench, punch, aligning bar, wire feed grinder, arc air cutter, plasma cutter
	knowledge of torque arm removal, installation techniques and procedures	
	knowledge of wear limits for torque arms (bent, worn)	
	knowledge of torquing specifications, procedures and sequence	
	knowledge of types of torque arm such as fixed or solid and adjustable	
	ability to inspect torque arm suspension connections and identify unacceptable connections	
	ability to remove and install torque arm	
	ability to align axle to king pin	
	ability to repair torque arm suspension connection	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

15.13	Replaces torque arm bushing.	knowledge of torque arm removal and installation techniques and procedures	air impact wrench, ballpeen hammer, chisels, punch, aligning bar, oxy-fuel torch, torque wrench
		knowledge of types of bushings including oversized and standard	

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of torquing specifications, procedures and sequences	
	ability to inspect torque arm suspension connections and identify unacceptable connections	
	ability to replace torque arm suspension connections	
	ability to align axle to king pin	
	ability to work adjustable radius rods	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

BLOCK C BRAKE SYSTEMS

Task 16 Services braking systems.

Trend: Towards the greater use of purchased rebuilt and relined brake shoes, extra stroke brake chambers, ABS systems and automatic slack adjustors.

	Sub-tasks	Enabling Objectives	Tools & Equipment
16.01	Checks brakes.	knowledge of damage and/or wear characteristics and limits	air system tester, floor jack, air compressor
		knowledge of brake operation	

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of brake pressure levels	
	knowledge of air pressure levels	
	knowledge of brake components and location of brake fluid reservoir	
	ability to operate an air system tester	
	ability to visually check brake lining for damage and wear	
	ability to assess and adjust brake fluid levels	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

16.02	Diagnoses brake problems.	knowledge of types and operating conditions for braking systems such as air disc, air and ABS knowledge of sizes, grades and types of brake linings knowledge of types and grades of air valves knowledge of types of slack adjustors knowledge of types, sizes and operation of valves knowledge of types and sizes of brake drums knowledge of types and sizes of disc brakes	wheel dolly, wheel wrench, ring pliers, air impact wrench, hoists, air jack, wrenches, drum gauge, brake lining gauge, hammers, screwdrivers, pliers, vice grips, sledge hammer

Sub-tasks		Enabling Objectives	Tools & Equipment
		knowledge of wheel removal techniques and procedures	
		ability to operate air and electric tools	
		ability to position safety stand under the axle	
		ability to install brake cage over the spring brake	
		ability to identify scoring on rotors or drum brakes	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

16.03	Replaces brake linings.	knowledge of types of brake systems and related components	hammers, air chisels, hand chisels, drills, fasteners, rivet gun, wire brush, buffers, air wrench, air impact ratchet
		knowledge of wheel removal techniques and procedures	
		knowledge of lining removal and installation techniques and procedures	
		knowledge of sizes, types and grades of linings	
		knowledge of sizes and types of fasteners	
		ability to chisel off bolts/rivets without damage to the shell	
		ability to clean brake shoe of dust, dirt and grease to meet installation specifications	
		ability to select and install fasteners	

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to mount lining to shoe	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	yes	yes	yes	ND	ND

16.04	Adjusts brakes.	knowledge of types and operating specifications for braking system knowledge of the Commercial Vehicle Inspection Manual (CVIM) for brake requirements knowledge of brake adjustment techniques and procedures knowledge of push-rod length and travel specifications knowledge of types of slack adjustors ability to operate the brake tester ability to adjust retracting components such as springs, camshaft application assemblies, bushings and ramp assemblies to meet specifications ability to set up and operate jacking tools and stands	brake tester, wrenches, hydraulic jack, stand, creeper

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

16.05	Checks drum/disc for wear.	knowledge of types, sizes and materials of drums and discs knowledge of wear factors or tolerances	micrometer, callipers, drum gauge

Sub-tasks					Enabling Objectives						Tools & Equipment	
					knowledge of CVIM for drum and disc tolerances ability to recognize heat checking and cracking ability to recognize 'out of round' in drum or mounting hole and discs ability to interpret micrometer and drum gauge readings							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND	
16.06	Replaces drum/disc.				knowledge of types of brake systems and related components knowledge of wheel removal techniques and procedures knowledge of drum/disc removal and installation techniques and procedures knowledge of sizes and types of drums/discs knowledge of types, sizes and grades of CVIM specified fasteners knowledge of torquing specifications, procedures and sequence knowledge of lubricating techniques and procedures ability to remove bolt without damage to the hub							nut splitting tool, air impact gun, oxy-fuel torch, wrenches, hammers, punch, torque wrench, alignment punch

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to select, install and torque fasteners ability to fit drum/disc into position ability to apply lubricant	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

16.07	Machines drum/disc.	knowledge of types of drum lathe operation techniques and procedures knowledge of drum/rotor specifications and standards ability to operate drum lathe ability to verify that the drum/rotor meets manufacturers' specification and/or CVIM standards ability to clean drum before installation ability to identify defective drums or rotors ability to interpret micrometer, drum gauge and dial indicator readings	drum lathe, drum gauge, micrometer, dial indicator

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	no	no	yes	yes	ND	ND

16.08	Replaces brake shoes.	knowledge of types of brake systems and related components knowledge of brake shoe removal and installation techniques and procedures	jacks, hoists, wheel dolly, air impact wrench, air impact gun, hammers, air wrench, spring bar, snap-ring

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of types, sizes and grades of shoes	pliers, wrenches, sockets, wire cutters
	knowledge of wheel removal procedure	
	knowledge of disc and/or rotor removal and installation techniques and procedures	
	ability to set up and operate hand tools	
	ability to operate lifting tools and devices	
	ability to remove brake shoes without damage to rotor or axle	
	ability to install brake shoe to spider	
	ability to install pads to calliper	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 17 Services air braking systems.

Trend: Towards the greater use of purchased rebuilt and relined brake shoes as well as a greater use of disc brakes, extra stroke brake chambers, ABS systems and automatic slack adjustors.

	Sub-tasks	Enabling Objectives	Tools & Equipment
17.01	Replaces spring brake chamber.	knowledge of spring brake chamber removal and installation techniques and procedures	torches, wrenches, air wrench, safety cage, air impact wrench, hacksaw

Sub-tasks		Enabling Objectives	Tools & Equipment
		knowledge of sizes and types of spring brake chambers	
		knowledge of spring brake caging techniques and procedures	
		knowledge of compression bolt removal and installation techniques and procedures	
		ability to cage the spring brake	
		ability to measure push rod length	
		ability to cut push rods to dimension	
		ability to verify push rod travel	
		ability to select and install compression bolts	
		ability to fit spring brake chamber to the mounting bracket	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

17.02	Replaces service chamber.	knowledge of service chamber dismantling techniques and procedures	hammers, wrenches, air wrench, air impact wrench
		knowledge of sizes and types of service chamber components such as diaphragms, push rods and clamps	
		ability to replace service chamber without damage to mounting bracket and/or slack adjustor	

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to align service chamber to mounting bracket ability to verify push rod travel	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

17.03	Repairs service chamber.	knowledge of service chamber dismantling techniques and procedures knowledge of sizes and types of service chamber components such as diaphragms, push rods and clamps ability to select and install service chamber components such as diaphragms, push rods and clamps ability to position safety stand under the axle ability to operate air and electric tools ability to install brake cage over the spring brake ability to assess condition of chamber components	air wrench, hammers, oxy-fuel torch, safety stands

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

17.04	Replaces air tanks.	knowledge of air tank removal and installation techniques and procedures	torches, hammers, wrenches, screwdrivers,

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of sizes and models of tanks	air impact wrench, pipe wrench
	knowledge of tank draining techniques and procedures	
	knowledge of removal and installation procedures for tank components such as valves and hoses	
	knowledge of leak testing techniques and procedures	
	ability to locate and operate drain valves	
	ability to verify when tank is empty	
	ability to test tank and connectors for leaks	
	ability to select and install fasteners	
	ability to verify that tank and connectors are leak free	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

17.05	Repairs valves.	knowledge of types of valves such as relay, servo, quick release and check	wrenches, pipe wrench, air impact ratchet, air wrench, hammers
		knowledge of valve removal and assembly techniques and procedures	
		knowledge of types, makes and sizes of replacement parts	
		knowledge of types of valve replacement parts such as diaphragm, O-ring, pistons and seals	

Sub-tasks					Enabling Objectives						Tools & Equipment	
					knowledge of valve operations							
					ability to select and install replacement parts such as diaphragm, O-ring, pistons and seals							
					ability to assess and verify fit of valve components							
					ability to verify that valve operates in accordance with specifications							

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

17.06	Replaces valves.				knowledge of removal and installation techniques and procedures						wrenches, pipe wrench, air systems tester	
					knowledge of types, makes and sizes of valves							
					knowledge of valve testing procedures and operation of air systems tester							
					ability to verify connection of hoses							
					ability to set up and operate air system tester							
					ability to test valves for leaks							
					ability to verify that valves operate in accordance with specifications							

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

17.07	Replaces glad hand.				knowledge of glad hand removal						wrenches, pipe wrench,	

Sub-tasks					Enabling Objectives						Tools & Equipment	
					and installation techniques and procedures						air systems tester	
					knowledge of types of glad hands							
					knowledge of glad hand testing procedures and operation of air systems tester							
					ability to select glad hand							
					ability to thread glad hand to coupler							
					ability to tighten and align glad hand							
					ability to test for leaks							
					ability to set up and operate air system tester							
	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
	ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
17.08	Replaces glad hand seal.				knowledge of seal removal and installation techniques and procedures						screwdriver, air systems tester	
					knowledge of types of seals							
					knowledge of testing procedures and operation of air systems tester							
					ability to fit seal into glad hand							
					ability to test seal for fit and leaks							
					ability to set up and operate air systems tester							
	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
	ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
17.09	Repairs lines and hoses.	knowledge of removal techniques and procedures knowledge of types and operation of air, vacuum and hydraulic brake systems knowledge of types, sizes and materials of lines, hoses, connectors and fittings knowledge of sizes and types of fasteners ability to select lines, hoses, connectors and fittings to meet system requirements ability to select and fit replacement section ability to select, install and fit fasteners ability to test components for leaks	flaring tool, tube cutter, hacksaw, knife, wrenches

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

17.10	Replaces lines, hoses and connectors.	knowledge of removal, installation techniques and procedures knowledge of types, sizes and materials of lines, hoses, connectors and fittings knowledge of leak testing procedures knowledge of sizes and types of fasteners	flaring tool, tube cutter, hacksaw, knife, wrenches

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to select and fit lines, hoses, connectors and fittings to meet system requirements	
	ability to select, install and fit fasteners	
	ability to test components for leaks	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 18 Services camshaft braking system.

Trend: Towards the greater use of purchased rebuilt and relined brake shoes as well as a greater use of disc brakes, extra stroke brake chambers, ABS systems and automatic slack adjustors.

	Sub-tasks	Enabling Objectives	Tools & Equipment
18.01	Replaces camshaft.	knowledge of removal and installation techniques and procedures	hammers, snap-ring pliers, wrenches, long punch, pry bar, ruler, oxy-fuel torch
		knowledge of camshaft operation	
		knowledge of types and sizes of camshafts	
		knowledge of sizes and types of fasteners	
		ability to remove camshaft without damage to spider, bracket or bushing	
		ability to select camshaft to meet system requirements	

Sub-tasks				Enabling Objectives							Tools & Equipment
				ability to install camshaft without damage to spider, bracket or bushing							
				ability to measure camshaft							
				ability to test camshaft to ensure it moves freely							
				ability to select and install fasteners							

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

18.02	Replaces bushings and cam bushing support bracket.			knowledge of slack adjustors/camshaft removal and installation techniques and procedures							TIG/MIG welder, hammers, drive punch, wrenches, chisels gun, chipping hammer, torch
				knowledge of types and sizes of bushings and brackets							
				knowledge of welding techniques and procedures							
				knowledge of types of welding rods							
				ability to set up and operate welding equipment							
				ability to clean cam bushing support bracket without damage							
				ability to align camshaft with bushing and bracket							
				ability to solid weld camshaft bushing support bracket to axle							

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
18.03	Replaces manual and/or automatic slack adjustor.	knowledge of removal and installation techniques and procedures	torches, hammers, wrenches, punch, snap-ring pliers
		knowledge of slack adjustor operation	
		knowledge of types and sizes of slack adjustors	
		knowledge of types and sizes of splines	
		knowledge of types and sizes of camshafts	
		knowledge of slack adjustor testing techniques	
		ability to measure size of camshaft and spline	
		ability to align slack adjustor to camshaft	
		ability to test operation of slack adjustor	
		ability to remove and install slack adjustor without damage to camshaft	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

18.04	Replaces hardware kits.	knowledge of types, sizes and materials of hardware kits such as return spring, anchor pins, roller pins, springs and bushings	hammers, punch, spring release bar, snap-ring pliers, wrenches, torch, wire cutters

knowledge of hardware kit removal and installation techniques and procedures

knowledge of brake operation

knowledge of sizes and types of fasteners

ability to select and install fasteners

ability to align brake shoes onto spider

ability to measure rollers and bushings

ability to test and verify operation of system

ability to select and install fasteners

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

18.05 Replaces spiders.

knowledge of removal and installation techniques and procedures

knowledge of types, sizes and makes of spiders

knowledge of welding and cutting techniques

knowledge of brake system operation

knowledge of brake testing procedures

ability to select spider to fit axle

oxy-fuel torch, air wrench, hammers, chisels, alignment punch, punches

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to align spider to axle	
	ability to test and verify system operation	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 19 Services air disc braking systems.

Trend: Towards the greater use of purchased rebuilt and relined brake shoes as well as a greater use of disc brakes, extra stroke brake chambers, ABS systems and automatic slack adjustors.

	Sub-tasks	Enabling Objectives	Tools & Equipment
19.01	Replaces callipers and actuators.	knowledge of removal and installation techniques and procedures	hammers, torch, punches, wrenches, screwdrivers, air impact wrench, chisels, snap-ring pliers, Allen keys, release clamp, dial calliper
		knowledge of types and sizes of callipers and actuators	
		knowledge of types, sizes and grades of brake pads	
		knowledge of brake testing procedures	
		ability to recognize type, size and grade of callipers and actuators	
		ability to align pads to callipers	
		ability to fit calliper to the rotor	
		ability to verify the free movement of braking components and rotor	

Sub-tasks					Enabling Objectives						Tools & Equipment	
					ability to test and verify system operation							
NF	NS	PE	NB		PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes		ND	yes	yes	yes	yes	yes	ND	ND
19.02	Refurbishes actuator.				knowledge of actuator removal and installation techniques and procedures						wire brush	
					knowledge of types and sizes of actuators							
					knowledge of types of hardware kits							
					knowledge of types of cleaning solvents							
					ability to recognize type, size and grade of actuators							
					ability to select cleaning solvent							
					ability to clean actuator with a wire brush without damage							
NF	NS	PE	NB		PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes		ND	no	yes	no	yes	yes	ND	ND
19.03	Replaces anchor plate.				knowledge of removal and installation techniques and procedures						oxy-fuel torch, air wrench, hammers, chisels, alignment punch, punches	
					knowledge of types and sizes of anchor plates							
					knowledge of welding and cutting techniques							

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of brake system operation	
	knowledge of brake testing procedures	
	ability to select anchor plate to fit axle	
	ability to align anchor plate to axle	
	ability to set up and operate welding equipment	
	ability to test and verify system operation	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 20 Services anti-lock braking systems (ABS). (NOT COMMON CORE)

Trend: Towards the greater use of purchased rebuilt and relined brake shoes as well as a greater use of disc brakes, extra stroke brake chambers, ABS systems and automatic slack adjustors.

	Sub-tasks	Enabling Objectives	Tools & Equipment
20.01	Replaces electromagnets.	knowledge of wheel removal techniques and procedures	hammers, screwdrivers, wrenches, wire cutters, hydraulic jack, snap-ring pliers, electric tester
		knowledge of electric brake system operation	
		knowledge of types and sizes of wheels	
		knowledge of ratings of magnets	

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of types and sizes of brake shoes and drums	
	knowledge of magnet removal techniques and procedures	
	knowledge of wiring techniques and procedures	
	knowledge of brake testing procedures	
	ability to select brake shoes and drums	
	ability to select magnet	
	ability to fit electromagnet to activating arm	
	ability to test and verify braking system operation	

(NOT COMMON CORE)

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	no	no	yes	ND	ND

20.02	Replaces wiring.	knowledge of types and gauges of wire	voltmeters, wire cutters
		knowledge of wire testing procedures	
		knowledge of wire removal and installation techniques and procedures	
		knowledge of connecting techniques and procedures	

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of cutting techniques and procedures	
	ability to select and install wire	
	ability to connect wire and wire terminals	
	ability to secure wires	
	ability to apply protective cover wire	
	ability to interpret voltmeter results to verify connections	

(NOT COMMON CORE)

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	no	no	yes	ND	ND

20.03	Replaces wheel sensors.	knowledge of wheel removal and installation techniques and procedures	wire cutters, wrenches, shrink tube, epoxy glue, anti-lock display unit
		knowledge of sensor removal techniques and procedures	
		knowledge of anti-lock braking system operation	
		knowledge of testing equipment	
		knowledge of manufacturers' and ABS test specifications	
		knowledge of glue application techniques and procedures	
		ability to interpret diagnostic test data	

Sub-tasks				Enabling Objectives		Tools & Equipment
				ability to verify operation of ABS system		
				ability to remove and install wheel sensor without damage to sensor		
				ability to select and apply glue to shrink tube		
				(NOT COMMON CORE)		

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	no	no	yes	ND	ND

20.04	Replaces exciter.	knowledge of ABS system operation	wire cutters, wrenches, anti-lock display unit
		knowledge of types and sizes of exciters	
		knowledge of removal and installation techniques and procedures	
		knowledge of types and sizes of fasteners	
		knowledge of manufacturers' specifications	
		knowledge of testing procedures	
		knowledge of types of lubricants and sealants	
		ability to interpret diagnostic test data	
		ability to verify operation of ABS system	
		ability to remove and install exciter without damage to sensor	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to select and install fasteners	
	ability to select and apply anti-corrosion lubricant and sealant	
	(NOT COMMON CORE)	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	no	no	yes	ND	ND

BLOCK D AXLES, TIRES, WHEEL HUBS AND RIMS

Task 21 Services axles and wheel hubs.

Trend: No apparent change.

	Sub-tasks	Enabling Objectives	Tools & Equipment
21.01	Assesses condition of axles and wheel hubs.	knowledge of axle alignment and position knowledge of types and sizes of axle and hub components such as seals, bearings, dust shields, studs, nuts and lugs knowledge of removal and installation techniques and procedures for axles, hubs, seals, bearings, dust shields, studs, lugs and nuts	hammer, hydraulic jack chisels, punches, torches, wrenches, TIG/MIG/arc air welder, wheel puller, wheel dolly, ruler

Sub-tasks		Enabling Objectives	Tools & Equipment
		knowledge of types and makes of oil and grease caps	
		ability to identify worn, damaged or corroded hubs and wheel bearings	
		ability to select repair techniques and procedures	
		ability to identify defective parts such as seals, lugs and nuts	
		ability to pull bearings	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

21.02	Replaces grease and oil caps and seals.	knowledge of hub removal and installation techniques and procedures	oil seal driver, hammer, wrenches, oil pump, grease pump
		knowledge of sizes and types of caps and seals	
		knowledge of sizes of seal drivers and wear rings	
		knowledge of types and grades of oil and grease	
		ability to fit seal and cap into hub	
		ability to pack bearings with grease	
		ability to select and fill hub with oil	
		ability to verify wheel operation	
		ability to check for oil leaks	

Sub-tasks				Enabling Objectives				Tools & Equipment			
				ability to remove and install oil caps and seals without damage to bearings							

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

21.03	Replaces cup and bearing.	knowledge of cup and bearing removal and installation techniques and procedures knowledge of location of cup and bearing knowledge of types and sizes of cups and bearings knowledge of types and grades of oil and grease ability to recognize defective cups and bearings ability to remove and install cups and bearings without damage to bearings ability to fit cup to hub ability to pack bearings ability to select grade of grease or oil ability to perform visual check on system to verify installation	hammers, punches, screwdrivers, sockets, air impact wrench

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
21.04	Replaces dust shields.	knowledge of shield removal and installation techniques and procedures knowledge of sizes and types of dust shields ability to select dust shield ability to align dust shield to spider ability to verify that the shield is not scraping the drum	wrenches, torch, hammers, air impact wrench

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
21.05	Replaces studs.	knowledge of stud removal and installation techniques and procedures knowledge of stud thread and nut sizes ability to select thread and length of studs and lugs ability to select and install lugs and nuts ability to remove and install studs without damage to hub ability to set up and operate heating torch ability to match studs to left or right side of trailer	stud remover, air impact wrench, wrenches, hammer, centre punch, drill, arc air cutter

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
21.06	Repairs axle.	knowledge of axle repair and removal techniques and procedures knowledge of types and sizes of axles knowledge of types thread chasers knowledge of types and sizes of bearings knowledge of grades of emery cloth ability to clean and deburr the axle ability to select grade of emery cloth ability to polish thread without damage to the threads ability to arrange for major axle repairs in machine shop	thread cutter, hammers, wrenches, oxy-fuel torch, steel buffer, wire brush, impact tool, emery cloth

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

21.07	Replaces axle.	knowledge of axle removal and installation techniques and procedures knowledge of types and sizes of axles knowledge of types and sizes of bearings ability to weld axle accessories ability to set up and install jacks	hammers, wrenches, oxy-fuel torch, impact tool, TIG/MIG/arc air welder, welding rods, hydraulic jacks, wheel puller, wheel dolly

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to pull wheels	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 22 Services tires and wheel rims.

Trend: No apparent change.

	Sub-tasks	Enabling Objectives	Tools & Equipment
22.01	Checks condition of tires, valve stem and cap.	knowledge of types of tires such as radial or bias ply knowledge of manufacturers' specifications for certification, construction, weight capacity of tires and performance designations ability to identify tire defects such as bulges, cuts, cracks and wear ability to identify mismatched tires ability to measure tread depth and determine tire life ability to identify damaged valve stems and caps ability to install valve stems	tread wear gauge

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

22.02	Checks tire pressure.	knowledge of manufacturers' recommended tire pressure and weight capacities	tire gauge, valve core remover

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to operate tire gauges and determine tire pressure	
	ability to inspect valve core for leakage or damage	
	ability to remove and repair valve core	
	ability to set up and install safety cages	
	ability to replenish air	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

22.03	Checks rims and lock rings.	knowledge of tire demounting techniques and procedures for single piece and multi-piece rims	drop centre bars, spoon bars, bead axe, rim protectors
		knowledge of types and construction of multi-piece rims and components	
		ability to remove lock rings and side rings	
		ability to break beads and pry beads over flange	
		ability to identify worn, cracked, bent or incompatible lock rings	
		ability to identify bent, worn, cracked, and broken rims and elongated holes	
		ability to identify worn, loose, missing, corroded, damaged studs and nuts	

Sub-tasks		Enabling Objectives		Tools & Equipment
		ability to assess seating of seated lock rings		

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

22.04	Checks rim spacers.	knowledge of location and function of rim spacers knowledge of inspection techniques and procedures for spacers and components ability to identify corrosion, damage, and wear to clamps, spacers, studs and nuts ability to identify mismatched spacers		

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

22.05	Replaces tire and wheel assemblies.	knowledge of types of wheel assemblies such as budd wheel mount (disc), motor wheel mount (disc) and Dayton wheel mount (rim) knowledge of tire and wheel assembly removal and installation techniques and procedures knowledge of torque requirements and sequence knowledge of tire and wheel assembly components including clamps, studs, nuts and spacers	air impact wrench, hammer, torque wrench, pry bar, alignment tool, rubber hammer

ability to remove, select and install wheel assembly components such as clamps and washers

ability to align duals and piston valves

ability to select and apply lubricants to studs and nuts

ability to tighten and torque nuts in prescribed sequence

ability to install decorative covers and wheel security devices

ability to lubricate studs and nuts

ability to torque nuts in prescribed sequence

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

22.06 Arranges for tire repair.

knowledge of tire defects that can be repaired such as flats, cuts, blown, tread ware, separations, recap separations

ability to request tire repairs including replacement of tires, valves and rims, patching tires, balancing tires

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

BLOCK E COUPLING UNITS

Task 23 **Services coupling units (fifth wheel, turntable, hitches).**

Trend: No apparent change.

	Sub-tasks	Enabling Objectives	Tools & Equipment
23.01	Checks condition of unit.	knowledge of diagnostic testing techniques and procedures	adjusting gauge, pry bar, vernier callipers
		knowledge of types of units such as fifth wheel, turntable and hitches and related components	
		knowledge of sizes and types of fasteners	
		knowledge of unit damage and/or wear characteristics for bushings and sliders	
		ability to verify tolerances	
		ability to inspect components such as cam anchors, pin and rollers, worn jaws, table top, bushings out of adjustment and loose fasteners	
		ability to identify worn and defective parts such as yolk, lock jaws, bushings, and pins	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.02	Checks fasteners.	knowledge of types and sizes of fasteners such as grade eight bolts, three-eighth inch truck bolts and welded bolts	air impact wrench

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of torquing specifications, procedures and sequence	
	ability to identify worn, bent, loose and stripped fasteners	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.03	Repairs fifth wheel.	knowledge of removal and installation techniques and procedures	air impact wrench, oxy-fuel torch, punch, hammer, welder, wrenches, lock tester, steam cleaner, angle grinder, disk grinder
		knowledge of types of fifth wheels such as Holland, Fontaine, Dayton and Austin	
		knowledge of fifth wheel components such as yolk, jaws, spring and locking pins, hinge pivots and bushings	
		knowledge of lubricating compounds and application procedures	
		knowledge of allowable tolerances for adjusting jaws	
		knowledge of cleaning procedures such as steam cleaning and pressure washing	
		ability to identify right or left hand side release on fifth wheel	
		ability to select fifth wheel assembly	
		ability to perform jaw adjustments	

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to install fifth wheel components	
		ability to operate degreaser or cleaning unit	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.04	Adjusts jaws on fifth wheel.	knowledge of jaw adjustment techniques and procedures	lock tester, Allen keys, hand wrench
		knowledge of damage and/or war characteristics and limits	
		ability to check for seized, cracked or broken jaws	
		ability to adjust locking mechanism	
		ability to check tolerances and identify loose jaws	
		ability to perform jaw adjustments	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.05	Replaces sliding fifth wheel plungers and control mechanism on sliding rack.	knowledge of removal and installation techniques and procedures for sliding fifth wheel plungers and control mechanisms	hand wrenches, hammer punch, grinders
		knowledge of damage and/or wear characteristics and limits	
		knowledge of sizes and types of fasteners	

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of location of plunger on fifth wheel	
	knowledge of types of sliders such as Fontaine, Holland, ASF	
	knowledge of adjustment procedures for plungers	
	knowledge of control mechanisms such as mechanical lever and linkage	
	knowledge of air controls and air lines	
	ability to check and adjust tolerances	
	ability to identify and replace damaged, worn, corroded components	
	ability to verify operation of plunger movement	
	ability to select type and size of hose and fittings	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.06	Replaces air release cylinder lines, hoses and fittings.	knowledge of damage and/or wear characteristics and limits	hand wrenches, hammer punch, grinders
		knowledge of location types and sizes of air release cylinder lines, hoses and fittings	
		knowledge of sizes and types of fasteners	

		knowledge of air release cylinder lines	
		ability to check and adjust tolerances	
		ability to identify and replace damaged, worn, corroded components	
		ability to select components for replacement	
		ability to select and replace lines, hoses and fittings	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.07	Checks fifth wheel saddle, bushings and pins for cracks and wear.	knowledge of types of saddles, bushings and pin for fifth wheel assemblies	pry bar
		knowledge of damage and/or wear characteristics and limits	
		knowledge of operation of fifth wheel	
		knowledge of location of saddle, bushings and pins	
		ability to identify cracks and worn parts	
		ability to check wear tolerances	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
23.08	Replaces saddle, bushings, shafts/pins.	knowledge of techniques and procedures to replace saddle bushings and pins knowledge of types of saddle, bushings, shafts/pins for fifth wheel assemblies ability to remove and install bushings and pins ability to identify and select parts such as bushings, pins and shafts ability to set up and operate lifting devices	oxy-fuel torch, hammer, punch, pry bar, hydraulic hoists/lift device

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.09	Replaces fifth wheel and mounting components.	knowledge of types and sizes of mounting components such as brackets, plates, sliding plates, angle fasteners knowledge of removal and installation techniques and procedures for fifth wheel and mounting components knowledge of sizes and types of fasteners knowledge of welding and torquing specifications, procedures and sequence knowledge of procedures to adjust locking mechanisms	oxy-fuel torch, hammer, punch, air impact wrench, torque wrench, welders, grinders, crane, hydraulic crane, overhead crane, fork lift, block and tackle

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of lubrication compounds and application procedures	
	ability to check tolerances	
	ability to select, weld and torque fasteners	
	ability to lubricate all moving parts	
	ability to set up and operate lifting devices such as fork lift, crane, hydraulic crane, block and tackle, overhead crane	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.10	Inspects fifth wheel compensator and components.	knowledge of location and function of fifth wheel compensator	pry bar, feeler gauge
		knowledge of components such as saddle, wear plates, shims, rods, springs, bushings and fasteners	
		knowledge of specifications of wear plates	
		knowledge of damage and/or wear characteristics and limits	
		knowledge of inspection procedures for fifth wheel compensator	
		ability to identify wear and cracks such as cracked saddles, broken bolts, crushed shims, worn shafts and bushings	
		ability to identify defective lines and grease nipples	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to check grease manifold and lines for wear/damage	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.11	Replaces fifth wheel compensator and components.	knowledge of removal and installation techniques and procedures for fifth wheel compensator and components knowledge of sizes and types of fasteners knowledge of welding and torquing specifications, procedures and sequence knowledge of saddle specifications knowledge of lubrication compounds and application procedures ability to weld wear plates on to unit and verify a good weld ability to select and install shims ability to select and install wear plates, shims and sliders ability to select and install and torque fasteners ability to lubricate moving parts ability to set-up and operate lifting devices	wrenches, oxy-fuel torch, hammer, arc welder, steam cleaner, feeler gauges, grinder, hydraulic crane, overhead crane

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
23.12	Checks king pin and upper coupler assembly.	knowledge of inspection procedures for king pin and upper coupler knowledge of damage and/or wear characteristics and limits knowledge of broken cross members knowledge of wear patterns and upper coupler distortion ability to interpret gauge readings ability to inspect for damage such as cracks and wear ability to check king pin fasteners for wear and looseness ability to check for missing or defective fasteners ability to check for cracked welds primarily in stress or load-bearing areas ability to arrange for outside non-destructive testing service	vernier or king pin tester, magnaflux equipment

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.13	Replaces king pin.	knowledge of king pin removal and installation techniques and procedures knowledge of welding specifications, procedures and sequence knowledge of sizes and types of upper couplers	air arc cutter, plasma cutters, oxy-fuel torches, air wrenches, wrenches, king pin gauge, TIG/MIG/arc air welder, rivet gun, electric saw, grinder

Sub-tasks		Enabling Objectives	Tools & Equipment
		knowledge of sizes and types of fasteners	
		ability to inspect upper coupler plate for cracks and wear	
		ability to select king pin to match upper coupler plate thickness	
		ability to select and install fasteners	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.14	Repairs upper coupler assembly.	knowledge of removal techniques and procedures for upper coupler assembly	air arc cutter, plasma cutters, torque wrench, Allen keys, wrench, arc air cutter, rivet gun, grinder, hydraulic jack and stand, dolly
		knowledge of upper coupler design and structural integrity	
		knowledge of welding and torquing specifications, procedures and sequence	
		knowledge of sizes and types of fasteners	
		ability to select steel plate and structural beams	
		ability to determine plate material	
		ability to fabricate structural details	
		ability to select and torque fasteners	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
23.15	Replaces upper coupler assembly.	knowledge of removal and installation techniques and procedures for upper coupler assembly knowledge of upper coupler design and structural integrity knowledge of welding and torquing specifications, procedures and sequence knowledge of sizes and types of fasteners ability to select weld and torque fasteners ability to grind rail or side of fifth wheel ability to fabricate structural details ability to position and rivet upper coupler assembly to main rail	wrenches, rivet gun, impact hammer, grinder, welder, hydraulic crane/jack

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.16	Inspects turntables.	knowledge of inspection techniques and procedures for turntables knowledge of function and structural design of turntables knowledge of sizes and types of fasteners knowledge of damage and/or wear characteristics and limits for turntables	pry bar, torque wrench, hydraulic crane

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to identify worn components such as worn ball bearings and rings ability to check wear tolerances	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.17	Replaces turntables.	knowledge of turntable removal and installation techniques and procedures knowledge of sizes and types of fasteners knowledge of supporting systems and equipment knowledge of lubrication compounds and application procedures knowledge of torquing specifications, procedures and sequence ability to select and install fasteners ability to torque fasteners to turntable ability to lubricate all moving parts	torque wrench and sockets, air arc cutter, plasma cutters, oxy-fuel torch, hammer, hydraulic jacks, supports, stands, grinder

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	yes	yes	yes	ND	ND

23.18	Checks operation of no-slack hitch eye.	knowledge of function and structural design of no-slack hitch eye	no-slack gauge

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of damage and/or wear characteristics and limits	
	knowledge of operation of air chamber	
	knowledge of inspection techniques and procedures	
	ability to inspect condition of no-slack hitch eye	
	ability to visually inspect cushion for adjustment	
	ability to check operation of air controls and air chamber	
	ability to check tolerances for excessive wear and damage on air chamber	
	ability to identify air leaks in air chamber or lines	
	ability to check sliding latch for wear, seizing and jamming or loose or broken latch mounting pin	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.19	Replaces no-slack hitch eye.	knowledge of operation of air chamber	grinder, air arc cutter, plasma cutters, gas cutter
		knowledge of removal and installation techniques and procedures for no-slack hitch eye	
		knowledge of damage and/or wear characteristics and limits	

Sub-tasks		Enabling Objectives	Tools & Equipment
		knowledge of cutting and welding specifications, procedures and sequence	
		knowledge of alignment procedures	
		knowledge of air chamber and air control function	
		ability to cut worn eye off draw bar	
		ability to align axle	
		ability to remove and install air chamber	
		ability to check operation of air controls	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.20	Checks operation of rubber bushed hitch eye.	knowledge of function and structural design of rubber bushed hitch eye	
		knowledge of removal and installation procedures	
		ability to inspect condition of rubber bushed hitch eye	
		ability to check wear tolerances for excessive wear and damage	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
23.21	Replaces hitch eye components.	knowledge of removal and installation techniques and procedures for rubber bushed hitch eye parts knowledge of function and structural design of rubber bushed hitch eye knowledge of welding and torquing specifications, procedures and sequence knowledge of sizes and types of fasteners ability to select and replace eye and or rubber bushing ability to select fasteners and torque eye lock nut ability to check wear tolerances for excessive wear and damage ability to verify a good weld	wrenches, hammer, torque wrench, welder

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.22	Checks safety chains, cables and attachments.	knowledge of sizes and types of safety chains, cables and attachments knowledge of sizes and types of fasteners knowledge of types and capacities of chains and cables knowledge of damage and/or wear characteristics and limits	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to identify excessive wear	
	ability to match size and capacity of chain/cable	
	ability to check for worn, broken or rusty cables	
	ability to access wear and check for worn or broken fasteners	
	ability to verify a good weld	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.23	Replaces safety chains, cables and attachments.	knowledge of removal and installation techniques and procedures for chains, cables and attachments	wrenches, gas oxy-fuel torch, welder, grinder
		knowledge of types and sizes of safety chains, cables and hooks	
		knowledge of types and sizes of attachments, such as eye, clevis, safety hook and latch, cable clamps, brackets, safety cable/chain eye	
		knowledge of welding specifications, procedures and sequence	
		knowledge of sizes and types of fasteners	
		ability to grind and weld after attachment has been removed	
		ability to attach cables and cable clamps	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to determine length of cable and chain according to length of draw bar	
	ability to weld eye or bracket on to towing vehicle and verify a good weld	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.24	Repairs draw bar and attachments.	knowledge of draw bar function and attachments such as hinged brackets, pins, bushings, bolts and mechanisms	arc air cutter, wrenches, grinder, hydraulic crane, fork lift
		knowledge of removal and installation techniques and procedures	
		knowledge of sizes and types of fasteners	
		knowledge of alignment and lifting procedures	
		knowledge of grinding and welding procedures	
		knowledge of torquing specifications, procedures and sequence	
		ability to detect excessive wear on draw bar eyes and bushing and structural frame	
		ability to identify and select attachments such as pins, bushings and brackets	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to remove, cut or grind eye and hinge brackets from draw bar ability to align axle to draw bar eye ability to select and install fasteners	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.25	Replaces draw bar and attachments.	knowledge of draw bar function and attachments such as hinged brackets, pins, bushings, bolts and mechanisms knowledge of removal and installation techniques and procedures knowledge of sizes and types of fasteners knowledge of alignment and lifting procedures knowledge of grinding and welding procedures knowledge of torquing specifications, procedures and sequence knowledge of fabrication procedures ability to select size and capacity of attachments such as tubing, eye brackets, pins and bushings ability to align axle to draw bar eye ability to fabricate draw bar assembly	arc air cutter, wrenches, torque wrench, grinder, hydraulic crane, fork lift, arc welder, hammer

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to remove, cut or grind eye and hinge brackets from draw bar	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

23.26	Repairs no-slack pintle hook.	knowledge of removal and installation techniques and procedures knowledge of function and specifications of no-slack pintle hook knowledge of sizes and types of fasteners knowledge of torquing specifications, procedures and sequence knowledge of air chamber and air control ability to select and install pintle hook lock components ability to torque pins and fasteners ability to identify pintle hook assembly ability to select and install fasteners ability to install air chamber and controls	wrenches, gas torch, hammer, alignment punch, air impact wrench, grinder

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
23.27	Replaces no-slack pintle hook.	knowledge of function and specifications of no-slack pintle hook knowledge of removal and installation techniques and procedures for no-slack pintle hook knowledge of sizes and types of fasteners knowledge of torquing specifications, procedures and sequence knowledge of damage and/or wear characteristics and limits knowledge of air chamber operation and air control ability to remove and install locking devices ability to identify inoperative air controls and air chamber ability to select pintle hook lock components ability to select and torque pins and fasteners ability to install pintle hook assembly ability to install air chamber and controls ability to identify and replace worn parts such as safety latch, fasteners and pins	wrenches, gas torch, hammer, alignment punch, air impact wrench, grinder

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to replace bracket attachment to cross member	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 24 Services landing gear.

Trend: No apparent change.

Sub-tasks		Enabling Objectives	Tools & Equipment
24.01	Replaces landing gear.	knowledge of removal and installation techniques and procedures	hammers, punches, wrenches, air wrench, torch, safety stand, hydraulic jack
		knowledge of types, makes, models and ratios of landing gear	
		knowledge of types of mounting patterns	
		knowledge of types of lubricants and application procedures	
		ability to remove and install landing gear without damage to mounting brackets, trailer or landing gear	
		ability to weld support braces and verify a good weld	
		ability to ensure landing gears are the same height	
		ability to align landing gear to shaft	

Sub-tasks	Enabling Objectives	Tools & Equipment

ability to lubricate parts

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

24.02	Repairs landing gear.	knowledge of gear sizes, makes and models knowledge of gear shift components such as shaft pins, bushings and spacers knowledge of gear shaft removal and installation techniques and procedures knowledge of bushing removal and installation techniques and procedures knowledge of types, makes, models and ratios of landing gear knowledge of types of mounting patterns knowledge of types of lubricants and application procedures ability to remove and install landing gear without damage to mounting brackets, trailer or landing gear ability to weld support braces and verify a good weld ability to ensure landing gears are the same height ability to align landing gear to shaft	hammers, punches, wrenches, air wrench, torch, safety stand, hydraulic jack, air impact wrench

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to lubricate parts	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

24.03	Replaces mounting bracket and braces.	knowledge of removal and installation techniques and procedures knowledge of types and sizes of brackets and braces knowledge of types and sizes of fasteners ability to select and install fasteners ability to select and install brackets and braces ability to align mounting and fasteners ability to weld telescopic braces and brackets and verify a good weld	hammers, torch, chisels, punch, air wrench, safety stand, hydraulic jack, TIG/MIG/arc air welder

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

24.04	Repairs mounting brackets and braces.	knowledge of removal and installation techniques and procedures knowledge of types and sizes of brackets and braces knowledge of types and sizes of fasteners	hammers, torch, chisels, punch, air wrench, safety stand, hydraulic jack, TIG/MIG/arc air welder, sledge hammer

Sub-tasks		Enabling Objectives	Tools & Equipment
		knowledge of heating procedures	
		ability to select and install fasteners	
		ability to select and install brackets and braces	
		ability to align mounting and fasteners	
		ability to weld telescopic braces and brackets and verify a good weld	
		ability to verify that brace is straight	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

24.05	Checks/replaces fasteners.	knowledge of types, grades, sizes and lengths of fasteners	torches, hammers, punches, wrenches, air wrench, chisels, safety stand, hydraulic jack
		knowledge of inspection techniques and procedures	
		knowledge of removal and installation techniques and procedures	
		ability to select and install fasteners	
		ability to visually inspect fasteners for defects	
		ability to secure fasteners	
		ability to remove fasteners	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
24.06	Replaces manual support legs.	knowledge of removal and installation techniques and procedures	torches, hammers, punches, wrenches, air wrench, chisels
		knowledge of types and models of support legs	
		knowledge of inspection techniques and procedures	
		knowledge of types and sizes of fasteners	
		ability to select and install fasteners	
		ability to visually inspect fasteners for defects	
		ability to align support legs to mounting brackets	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

24.07	Repairs manual support legs.	knowledge of removal and installation techniques and procedures	torches, hammers, punches, wrenches, air wrench, chisels
		knowledge of types and models of support legs	
		knowledge of inspection techniques and procedures	
		knowledge of types and sizes of fasteners	
		ability to operate hand torch to straighten support leg/sand shoe	
		ability to verify straightness of legs	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to select and install fasteners	
	ability to visually inspect fasteners for defects	
	ability to align support legs to mounting brackets	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

BLOCK F COOLING AND HEATING UNITS

Task 25 **Services heating and refrigeration units.**

Trend: No apparent change.

	Sub-tasks	Enabling Objectives	Tools & Equipment
25.01	Checks belts and water, oil, and fuel filters.	knowledge of types of heating and refrigeration units	
		knowledge of inspection schedules for filters and belts	
		knowledge of sizes and types of filters for water oil and fuel	
		knowledge of sizes and types of belts for heating and refrigeration units	

Sub-tasks		Enabling Objectives	Tools & Equipment
		knowledge of location of filter and belts ability to identify cracks, worn, missing and loose belts ability to identify leaking and plugged filters	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	yes	yes	yes	ND	ND

25.02	Replaces water, oil and fuel filters.	knowledge of location of filters knowledge of sizes and types of filters knowledge of types of heating and refrigeration units knowledge of removal or installation procedures for water, oil and fuel filters ability to select and position filter to meet unit requirements	wrenches

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

25.03	Replaces belts.	knowledge of types of belts such as flat and vee knowledge of location and size of belts knowledge of removal and installation procedures	wrenches, pry bars, belt tensioner

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to assess and adjust tension in belts	
		ability to select and install belt to meet unit requirements	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	yes	yes	yes	ND	ND

25.04	Checks fluid levels including water, oil and fuel.	knowledge of fluid level requirements	
		knowledge of types and grades of oil and fuel	
		knowledge of potential fluid contaminants	
		ability to identify contaminated fluids	
		ability to locate and interpret indicators such as sight glasses, dip sticks, gauges	
		ability to interpret freon level gauges and identify servicing requirements	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

25.05	Replenishes fluid levels.	knowledge of techniques and procedures to drain fluids such as water, oil and fuel	sockets, wrenches
		knowledge of techniques and procedures to adjust fluid levels such as water, oil and fuel	

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of system fluid level requirements	
	knowledge of types and grades of oil and fuel	
	ability to drain oil, fuel and water from unit	
	ability to add fluids to required levels	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

25.06	Functionally tests refrigeration or heating units.	knowledge of types and servicing requirements of refrigeration and heating units	
		knowledge of testing techniques and procedures for refrigeration and heating units and components	
		knowledge of operating conditions for components of heating and refrigeration units such as battery, starter, alternator, preheater, shutdown, set-ups, evaporators, condensers, coils, fans	
		knowledge of start-up procedures for refrigeration or heating units	
		ability to start-up refrigerator/heating unit	
		ability to operate heating/refrigeration controls to inspect temperature, defrost cycle and heat cycle	

Sub-tasks				Enabling Objectives						Tools & Equipment	
				ability to recognize the activation of emergency shutdown systems							
				ability to locate and assess the operation of heating and refrigeration components							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND
25.07	Checks mounting fasteners and brackets.			knowledge of types and location requirements of heating and refrigeration units							
				knowledge of types and location of mounting fasteners and brackets							
				knowledge of types, specifications and location of mounting fasteners and brackets							
				knowledge of bracket attachment procedures including welding and bolting							
				ability to identify corroded, cracked, stretched, bent, missing, loose or broken fasteners or brackets							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND
25.08	Replaces mounting fasteners and brackets.			knowledge of types and sizes of mounting fasteners or brackets						torque wrenches, grinders, oxy-fuel torches	
				knowledge of removing and installation techniques and procedures for brackets and fasteners including welding or bolting							

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of attachment techniques and procedures for heating/refrigeration units	
	knowledge of torquing specifications, procedures and sequences	
	ability to remove damaged brackets and fasteners without damaging structural components of trailer body	
	ability to weld brackets to frame	
	ability to secure heating refrigeration unit to brackets or structural members of trailer body	
	ability to recognize acceptable fasteners	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

25.09	Arranges for refrigeration/heating unit repair.	knowledge of type and model of refrigeration/heating unit	wrenches
		knowledge of repair facilities for heating/refrigeration units	
		ability to identify symptoms/problems regarding operation of refrigeration/heating units	
		ability to remove refrigeration/heating unit without damaging trailer structure	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 26 Services propane heaters.

Trend: No apparent change.

	Sub-tasks	Enabling Objectives	Tools & Equipment
26.01	Tests propane heaters for leaks.	knowledge of location of propane heaters	soap and water solution, wrenches
		knowledge of testing techniques and procedures relating to propane heaters and components	
		knowledge of operation of propane heaters	
		ability to identify most common areas for leakage such as fittings, hoses and lines	
		ability to visually inspect fittings, hoses and lines for defects	
		ability to apply soap and water solution and identify leaks	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

26.02	Checks mounting brackets and fasteners.	knowledge of bracket attachment procedures including welding and bolting	
		knowledge of types and location requirements of propane heaters	
		knowledge of types and location of fasteners and brackets	

Sub-tasks					Enabling Objectives							
					ability to identify corroded, cracked, stretched, bent, missing, loose or broken fasteners or brackets							
	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
	ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND
26.03	Repairs mounting brackets.				knowledge of types and sizes of mounting brackets						welders, grinders, wrenches	
					knowledge of fastening specifications							
					knowledge of repair techniques and procedures							
					ability to build up worn brackets							
					ability to reinforce brackets							
					ability to weld cracks							
					ability to straighten mounting bracket							
	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
	ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND
26.04	Replaces mounting brackets and fasteners.				knowledge of types and sizes of mounting fasteners or brackets						torque wrenches, welders, oxy-fuel torches, grinders, air impact wrench	
					knowledge of removing and installation techniques and procedures for mounting brackets and fasteners							
					knowledge of location of mounting brackets and fasteners for tanks and propane heating unit							

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of torquing specifications, procedures and sequence	
	ability to remove damaged brackets and fasteners without damaging structural components of trailer body	
	ability to select and install and torque fasteners	
	ability to weld brackets to frame	
	ability to grind weld	
	ability to secure propane tank to brackets or to structural components of trailer body	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

26.05	Arranges for propane heater repair.	knowledge of type and model of propane heater	wrenches
		knowledge of repair facilities for propane heaters	
		ability to identify symptoms/problems relating to propane heater operation	
		ability to remove tanks	
		ability to remove propane heater unit without damaging trailer structure	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

BLOCK G TRAILER BODIES

Task 27 Performs general trailer repairs.

Trend: No apparent change.

	Sub-tasks	Enabling Objectives	Tools & Equipment
27.01	Inspects unit.	knowledge of inspection techniques and procedures	
		knowledge of types of units, such as flat bed, van, cattle pots, dump trailer and tankers	
		knowledge of structural materials, such as aluminum, steel and stainless steel	
		knowledge of sizes and types of fasteners such as, aluminum, steel and plastic	
		knowledge of manufacturers' operating specifications	
		ability to identify structural damage to interior/exterior trailer such as, cracked or broken floors, main rails, broken or bent panels and side posts, roof/roof bows, cross members and upper couplers	
		ability to check doors for missing door seals and rollers or warn tracks and hardware	
		ability to recognize water leaks on roof or side walls and corrosion on bottom rails and side walls	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to recognize loose fasteners/rivets on side walls, kick panels and scuff liner	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

27.02	Repairs door frame and door on vans.	knowledge of repair techniques and procedures knowledge of types and structures of doors such as dry freight, refrigerated door, barn door, or roll-up door knowledge of sizes and types of fasteners knowledge of welding techniques and procedure ability to identify type and construction of door, such as roll-up, barn or dry freight door ability to recognize out-of-square door ability to select type of spring assembly and panels for roll-up door ability to weld, straighten, reconstruct reinforce and install sections and door frames ability to select and install hardware such as hinges, rollers, door locking bar, hinge butts, pins, lock cams and keepers	square, hot air welder, welder, hammer, punch, porto-power (hydraulic jack), braces, impact/air wrench, gas torch, hand wrenches, rivet gun, drill, bucking dolly

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to adjust and/or restore door seals/gaskets	
	ability to resheet, reskin and re-insulate doors	
	ability to weld and install hinge butts and verify a good weld	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

27.03	Repairs main and top rails on vans, dumpers, cattle pots, grain and pole trailers.	knowledge of repair techniques and procedures	hydraulic jacks and supports, rivet gun, air impact hammer, arc welder, bucking tool, gas torch, vapour detector, air/electric drill, grinder
		knowledge of type of units, such as vans, flat beds, low beds, dump trailers	
		knowledge of types and characteristics of materials such as aluminum, steel and stainless steel	
		knowledge of welding and heating techniques and procedures for trailer repairs	
		knowledge of straightening techniques and procedures	
		ability to steam clean tankers/vessel units	
		ability to detect fatigue, corrosion and damage on rails	
		ability to test tankers/vessel units for safety before being repaired	
		ability to section main and top rail	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to rivet cross members, roof bows, and replaced portion of rail	
	ability to straighten, weld and reinforce main and top rail	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

27.04	Repairs cross members.	knowledge of repair techniques and procedures	tape measure, rivet gun, welder, gas torch, grinder, bucking dolly, drill, impact, hydraulic jack, come-along/ pulling tool
		knowledge of types of units	
		knowledge of cross members and placement/location	
		knowledge of types of cross members such as I-beams, tubular, channels or hot sections	
		knowledge of fabrication techniques and procedures	
		knowledge of sizes and types of fasteners	
		knowledge of welding techniques and procedures	
		ability to identify bent, cracked and corroded cross members	
		ability to measure, cut and fit cross members	
		ability to fabricate cross members	
		ability to select and install fasteners	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
27.05	Repairs subframe.	knowledge of materials and thicknesses knowledge of subframe structure and attachments such as suspension equalizing hangers and air tanks knowledge of sizes and types of fasteners knowledge of welding techniques and procedures knowledge of steam cleaning procedure for tankers/vessel units knowledge of jacking, supporting and levelling techniques and procedures ability to identify structural shapes of subframes such as, C-channel, I-beam or tubular ability to identify bent, loose, cracked, corroded or broken subframes ability to select and install fasteners ability to fabricate subframes ability to level unit before repair is made	gas torch, welders, grinder, arc air cutter, hammer, rivet gun, air impact, wrenches, hydraulic jacks and supports, overhead cranes, pry bars, tape measure

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

27.06	Repairs load security.	knowledge of types of load control materials such as load bars, belt and	gas torch, welders, drills, grinder, impact, arc air cutter, hammer,

Sub-tasks	Enabling Objectives	Tools & Equipment
	steel cable wenches, nylon straps and chain cinches	rivet gun, wrenches, C-clamps
	knowledge of sizes and types of fastening devices	
	knowledge of load security replacement procedures	
	knowledge of welding techniques and procedures	
	ability to detect broken chains, locks, cables and wenches	
	ability to identify and select types of load control materials and equipment	
	ability to position and fasten load security according to load specifications	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

27.07	Repairs roof on vans and cattle pots.	knowledge of types and sizes of material such as roof sheets, aluminum, rubber, fibreglass	rivet gun, drill, air chisels, bucking tool, hammer, stretchers, electric sheers, caulking guns, level, trailer supports, hydraulic jack
		knowledge of sizes and types of fasteners	
		knowledge of rivetting and caulking techniques and procedures	
		ability to identify damaged area(s) of roof	
		ability to identify and replace loose fasteners	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to select and install materials and support systems such as roof bows	
	ability to cut sheet metal to size	
	ability to select and install fasteners	
	ability to patch, caulk and rivet materials	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

27.08	Replaces roof on vans and cattle pots.	knowledge of types and sizes of material such as roof sheets, aluminum, rubber, fibreglass	rivet gun, drill, air chisels, bucking tool, hammer, stretchers, portable/electric sheers, caulking guns, level, trailer supports, hydraulic jack
		knowledge of stretching procedures and stretching devices	
		knowledge of levelling procedures	
		knowledge of sizes and types of fasteners	
		knowledge of rivetting and caulking techniques and procedures	
		ability to select and install support systems and fasteners	
		ability to identify and replace loose fasteners	
		ability to clean/prepare roof bow and top rails (old glue/rivets)	
		ability to straighten top of unit, position roof sheet square and rivet	

Sub-tasks	Enabling Objectives	Tools & Equipment

ability to attach and operate stretching device

ability to caulk and rivet materials

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

27.09 Repairs side walls on vans, dumpers, cattle pots and grain trailers.

knowledge of types of materials such as fibreglass, aluminum and rubber

knowledge of types and structures of units

knowledge of sizes and types of fasteners

knowledge of levelling techniques and procedures

knowledge of straightening equipment operation

knowledge of insulation removal techniques and procedures

knowledge of welding and rivetting techniques and procedures

ability to select, measure and cut materials to specified size

ability to select and install rivets on vans and weld dumpers, cattle pots and grain trailers

ability to operate hydraulic jack

ability to brace roof with supports

rivet gun, drill, bucking tool/bar, caulking gun, hammer, electric shears, electric saw, supports, tape measure, plasma cutters

Sub-tasks					Enabling Objectives						Tools & Equipment
					ability to install post filler (wood/plaster) and replace damaged side posts ability to replace lining and arrange for insulation						

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

27.10	Repairs floors on flatbeds, vans, cattle pots, grain and dumper trailers.	knowledge of types of flooring techniques and materials such as wood, steel and aluminum knowledge of unit preparations such as cleaning top of cross members, levelling, straightening and supporting trailer unit knowledge of sizes and types of fasteners knowledge of welding, rivetting and caulking techniques and procedures knowledge of insulation removal techniques and procedures ability to select types of material(s) for specific unit type ability to cut out damaged portion and measure, cut and replace floor section(s) ability to lay and fasten flooring ability to apply insulation or sublet and arrange for outside insulation	drill, gas torch, welders, impact, hammer, electric saw, caulking gun, arc air cutter, hydraulic jacks

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to select and install fasteners	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

27.11	Repairs bulkheads on vans, flatbed, cattle pot, dumpers and grain trailers.	knowledge of types and structures of units knowledge of types of materials such as fibreglass, aluminum and rubber knowledge of sizes and types of fasteners knowledge of jacking and levelling techniques and procedures knowledge of straightening equipment operation knowledge of insulation removal techniques and procedures knowledge of welding and rivetting requirements and compatible related structures such as rivet vans/weld dumpers, cattle pots and grain trailers ability to identify damaged or corroded flooring ability to select, measure and cut materials to specified size ability to replace lining and sublet/arrange for insulation ability to replace bulkhead posts	rivet gun, drill, bucking tool/bar, caulking gun, hammer, electric shears, electric saw, hydraulic jack, levels, supports, tape measure, plasma cutters

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
27.12	Repairs steel bunks and safety wrappers on pole trailers.	knowledge of types of loads being transported knowledge of sizes and types of fasteners knowledge of structure of material and tensile strength knowledge of welding techniques and procedures ability to identify material ability to select and install fasteners ability to straighten bunks or center pins ability to replace safety wrappers	gas torch, welder, plasma cutters, grinder, arc air cutter, hammer, wrenches, C-clamps

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 28 **Performs tanker repairs.**

Trend: No apparent change.

	Sub-tasks	Enabling Objectives	Tools & Equipment
28.01	Tests vapour recovery system for leaks.	knowledge of testing techniques and procedures for vapour recovery systems ability to operate testing tools and equipment ability to follow testing procedures to test tank, tank vapour collection	pressure gauge, testing equipment, air compressor

Sub-tasks		Enabling Objectives		Tools & Equipment
		equipment, pipes, hoses, manhole cover ability to interpret test results		

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.02	Repairs recovery system components.	knowledge of removal and installation techniques and procedures for recovery system components knowledge of operation of recovery system and components such as vapour recovery hoods, valves, piping, posi-vents, tunnels and air controls knowledge of testing procedures for components knowledge of welding, cutting and fitting procedures knowledge of sizes and types of fasteners ability to locate damaged components ability to weld, cut, clamp and fit components and verify a good weld ability to interpret test results ability to select and install fasteners	wrenches, saws, torches, plasma cutter, TIG/MIG/arc air welder, hammers, jig saw, air impact, air chisels, scaffolding

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
28.03	Replaces defective components.	knowledge of removal and installation techniques and procedures for recovery system components knowledge of operation of recovery system and associated components such as gaskets, valves, piping, posi-vents, tunnels, baffles and air controls knowledge of testing procedures for components knowledge of welding, cutting and fitting procedures knowledge of sizes and types of fasteners ability to locate damaged components ability to interpret test results ability to weld, cut, clamp and fit components and verify a good weld ability to select and install fasteners	wrenches, saws, torches, plasma cutter, TIG/MIG/arc air welder, hammers, jig saw, air impact, air chisels, scaffolding

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.04	Repairs tunnels and overturn protection on tankers.	knowledge of tunnel removal and installation techniques and procedures knowledge of trim and tunnel materials	welder, electric saw, air chisels, hammer, plasma cutters, pressure gauge

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of types and sizes of tunnels	
	knowledge of welding techniques and procedures	
	knowledge of pressure testing procedures	
	ability to select and cut repair material	
	ability to weld material and verify a good weld	
	ability to align and fit tunnel to tanker	
	ability to fit tunnel sections	
	ability to pressure test tunnel	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.05	Repairs baffles on tankers.	knowledge of removal and installation techniques and procedures for baffles	welder, hammer, plasma cutters, air chisels, electric saw
		knowledge of baffle materials	
		knowledge of types and sizes of tanker baffles	
		knowledge of welding techniques and procedures	
		knowledge of penetrant testing procedures	
		ability to measure and cut baffle	

Sub-tasks					Enabling Objectives						Tools & Equipment
					ability to align and fit baffle sections ability to perform penetrant test						

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	no	yes	ND	ND

28.06	Performs leak test on tankers.	knowledge of testing techniques and procedures for fuels such as oil, gases and diesel fuel knowledge of air pressure requirements for tankers knowledge of construction of tanker and number of compartments ability to pressurize compartment before testing ability to visually check for leaks ability to perform leak test ability to interpret leak test	wrenches, air regulator, air pressure gauge, pipe plug

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.07	Repairs hatch cover components.	knowledge of removal and installation techniques and procedures for hatch cover components knowledge of types of hatch covers and distinctive components such as hinges, latches, vents, valves and gaskets	grinders, hand wrench, pipe wrench, welder, explosive proof trouble light, oxy-fuel torch, pliers, hammer, plasma cutters

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of sizes and types of fasteners	
	knowledge of sizes and types of gaskets	
	knowledge of welding and cutting procedures	
	ability to select specific component (material) to match hatch cover	
	ability to adjust/disconnect and connect linkages	
	ability to reinstall vents and valves	
	ability to detect worn or broken hinges and latches	
	ability to weld, grind and cut components	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.08	Replaces hatch covers.	knowledge of removal and installation techniques and procedures for hatch covers	grinders, hand wrench, pipe wrench, welder, explosive proof trouble light, oxy-fuel torch, pliers, hammer, plasma cutters
		knowledge of types of hatch covers such as dry bulker, fuel and vessel	
		knowledge of materials such as zinc, aluminum and stainless steel	
		knowledge of types and sizes of gaskets	
		knowledge of products being carried such as oxygen, propane, anhydrous ammonia, liquid carbonic acid	

Sub-tasks					Enabling Objectives	Tools & Equipment
					knowledge of sizes and types of fasteners	
					ability to select type and design of hatch cover	
					ability to select and install fasteners	
					ability to align and fit hatch covers	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.09	Replaces wrapper/ jacketing.	knowledge of removal and installing techniques and procedures for wrappers and jacketing	air gun, air chisels, air impact, porto-shear/cutters
		knowledge of types and sizes of tanks such as asphalt or heat producing (warm resin, glue, paint and cleaning resins)	
		knowledge of fabricating procedures and fabrication materials such as aluminum and stainless steel	
		ability to select types of materials	
		ability to fabricate wrappers and jackets	
		ability to install wrappers and jacket	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

28.10	Tests heating pads, pipes, coils, flues.	knowledge of testing procedures for heating pads, pipes, coils and flues	air regulator, soap/water, air supply,

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of heating systems such as exhaust or steam	developer and dye checks
	knowledge of types and purpose of heating pads, pipes, coils and flues	
	ability to perform leak test	
	ability to interpret leak test results and locate leaks in seams or connectors	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.11	Repairs heating pads and coils.	knowledge of coil removal and installation procedures	welders, hammer, air chisels, plasma cutters, saws, wrenches
		knowledge of heating systems	
		knowledge of heating pads and coil materials	
		knowledge of sizes and types of fasteners	
		knowledge of manufacturers' specifications	
		knowledge of welding techniques and procedures	
		ability to select and install fasteners	
		ability to cut heating pads and coils	
		ability to remove and install heating pads, coils, damaged barrels, heads and baffles	

Sub-tasks		Enabling Objectives		Tools & Equipment
		ability to weld pads and coils and verify a good weld		

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.12	Repairs under-ride protection and bumper.	knowledge of removal and installation techniques and procedures		saw, torch, plasma cutters, hammers, wrenches, air wrenches, chisels
		knowledge of purpose of under-ride protection and bumper		
		knowledge of types and sizes of under-ride protectors and bumpers		
		knowledge of sizes and types of fasteners		
		knowledge of types of under-ride protection materials		
		knowledge of welding techniques and procedures		
		ability to visually inspect welded areas of under-ride protection and bumper and verify good welds		
		ability to align under-ride protection to tanker or section to under-ride protection		
		ability to fit bumper/section to frame		

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
28.13	Repairs manifold and piping.	knowledge of manifold operation, construction and materials knowledge of piping materials knowledge of sizes and types of fasteners and gaskets knowledge of welding and cutting procedures knowledge of testing procedures ability to weld, cut and fit manifold parts ability to select and install fasteners, gaskets and adaptors ability to perform hydrostatic test ability to align pipes to manifold or value	saws, chisels, air chisels, wrenches, pliers, hammers

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.14	Arranges for ultrasonic testing.	knowledge of federal licensing required for non-destruction testing knowledge of equipment required for ultrasonic testing knowledge of equipment to be tested such as chemical tanks and pressure tanks ability to identify coded tankers ability to identify companies and facilities authorized to conduct ultrasonic tests

Sub-tasks		Enabling Objectives		Tools & Equipment
		ability to interpret results of ultrasonic testing		

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

28.15	Arranges for wet-magnetic particle testing.	knowledge of federal licensing requirements for non-destructive testing knowledge of equipment required to perform wet-magnetic particle testing knowledge of tankers, trailers that require wet-magnetic particle testing such as pressure tanks, and chemical tanks ability to identify companies and facilities authorized to conduct wet-magnetic particle testing ability to identify coded tankers ability to interpret results of wet-magnetic particle testing		

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	no	yes	no	yes	yes	ND	ND

28.16	Performs hydrostatic test.	knowledge of federal licensing requirements for hydrostatic testing and certified inspection knowledge of hydrostatic testing procedures	pressure gauge, regulators, safety signs, pressure gauges, hydrostatic test equipment	

Sub-tasks	Enabling Objectives	Tools & Equipment

knowledge of pressure specifications of tank

ability to follow hydrostatic testing procedures

ability to interpret hydrostatic testing results

ability to determine integrity of tank

ability to test tank integrity and tank valves

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.17 Inspects internal and external tanker components visually.

knowledge of inspection techniques and procedures

knowledge of internal components of tankers such as baffler, bulkheads, seams and tank shell

knowledge of external tanker components such as valves, pipes, wrappers, mounting structures, valve protectors and hatch covers

ability to identify damage, corrosion, cracking of tank supports and piping

ability to identify dents, damage, corrosion, cracking tank valve, bulkheads, baffles

ability to inspect welds for cracks

		ability to identify leaks of tank valve	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

28.18	Repairs safety relief valves and vents.	knowledge of removal and installation techniques and procedures knowledge of location and function of safety relief valves and vents knowledge of sizes and types of valves ability to select and install safety relief valves and vents ability to test safety relief valves ability to replace defective springs, gaskets and seats ability to lubricate threads	regulator, pressure gauge, hitch testing equipment, air compressor, wrenches

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

Task 29 Services electrical systems.

Trend: Towards the increased use of scanners, electronic test equipment and diagnostic computers to isolate system faults.

	Sub-tasks	Enabling Objectives	Tools & Equipment
29.01	Conducts visual inspection of trailer electrical system.	knowledge of inspection techniques and procedures knowledge of location of lamps, connections, boxes and wiring ability to identify damaged and corroded lamps, junction boxes, light boxes, connections, sockets ability to identify corroded/damaged wiring and wiring harnesses ability to identify damaged, corroded wire supports	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

29.02	Tests trailer electrical systems.	knowledge of trailer electrical systems and types of electrical test equipment knowledge of locations to hook up diagnostic testers knowledge of wiring colour codes ability to operate a diagnostic tester ability to hook-up power source ability to interpret wiring diagrams ability to identify electrical defects, short circuits, grounds, and broken wires ability to troubleshoot circuits using a test light	diagnostic tester, electric tester, test light

Sub-tasks				Enabling Objectives							Tools & Equipment
				ability to isolate electrical fault							

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

29.03	Repairs nose box structure.	knowledge of sizes and types of fasteners knowledge of components of nose box including mounting brackets, fasteners, wires, circuit breakers, fuses and sockets knowledge of location of nose box ability to identify cracked, corroded, bent and loose nose boxes ability to select and replace fasteners and mounting brackets ability to weld cracks and verify a good weld ability to disassemble nose box ability to straighten nose box	wrenches, screwdrivers, riveters, taps and dies, welders, hammer, pry bar

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

29.04	Replaces nose box.	knowledge of removal and installation techniques and procedures for nose box knowledge of sizes and types of fasteners	screwdrivers, wrenches, heat shrink gun, soldering iron, wire strippers, wire cutters

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of components of nose box including wires, circuit breakers, fuses and sockets	
	ability to interpret wiring diagrams	
	ability to disconnect and reconnect wiring	
	ability to secure electrical connections	
	ability to remove vapour-proof piping	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

29.05	Repairs sockets.	knowledge of removal and installation techniques and procedures	screwdriver, wrenches, wire stripper, wire cutters, heat shrink guns, soldering iron
		knowledge of location, sizes and types of sockets	
		knowledge of wiring diagram symbols	
		knowledge of socket disassembly procedures	
		ability to interpret wiring diagrams	
		ability to replace pins, circuit breakers, covers and seals	
		ability to secure connection	
		ability to strip wire	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
29.06	Replaces sockets.	knowledge of socket removal and installation techniques and procedures knowledge of location sizes and types of sockets knowledge of wiring diagram symbols ability to interpret wiring diagrams ability to disconnect and reconnect wiring ability to secure connection ability to test operation of sockets ability to strip wire	screwdriver, wrenches, wire strippers, wire cutters, heat shrink gun, soldering iron

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

29.07	Repairs wiring.	knowledge of connection techniques and procedures knowledge of types sizes and codes of wiring knowledge of wiring diagram symbols ability to interpret wiring diagrams and select wiring ability to splice wires ability to select and replace wiring harnesses ability to secure wiring connections	wire strippers, wire cutters, fish tape, heat shrink gun, soldering iron, screwdrivers, wrenches

Sub-tasks				Enabling Objectives						Tools & Equipment	
				ability to support wiring							
				ability to test wiring							
				ability to fish wiring							
				ability to apply anti-corrosion grease							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
29.08	Replaces lamps, lenses, bulbs and reflectors.			knowledge of removal and installation techniques and procedures for lamps, lenses, bulbs and reflectors						wrenches, wire strippers, wire cutters, heat shrink guns, screwdrivers	
				knowledge of location and components of lighting system							
				knowledge of type and part numbers of lamps, lenses, bulbs and reflectors							
				knowledge of sizes and types of fasteners							
				knowledge of types, sizes and grades of wiring and wiring covering							
				ability to select and install wiring							
				ability to apply anti-corrosion grease							
				ability to select and install fasteners							
				ability to select and install wire coverings such as pipes, hoses or conduit							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
29.09	Diagnoses auxiliary electrical systems.	knowledge of diagnostic techniques and procedures knowledge of operation of auxiliary systems such as ABS brake, electronic loading system, left axles, power tail gates, auxiliary lights and backup alarms knowledge of components of auxiliary systems such a solenoids, sensors, switches, actuators, electronic modules knowledge of wiring colour codes and diagram symbols knowledge of diagnostic techniques and procedures ability to interpret wiring diagrams ability to operate diagnostic tests ability to install power source ability to isolate fault to component of auxiliary system	diagnostic testers, wrenches, screwdrivers

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

29.10	Replaces solenoid, switches, sensors, activators and electronic modules.	knowledge of handling, removal and installation procedures for solenoids, switches, sensors, activators and electronic modules knowledge of location of auxiliary electrical system components and clearance requirements ability to interpret wiring diagrams	wrenches, screwdrivers, wire strippers, shrink tester, connectors, wire cutter, fasteners, heat shrink gun

Sub-tasks		Enabling Objectives	Tools & Equipment
		ability to handle auxiliary system components	
		ability to secure and interconnect auxiliary systems components	
		ability to test auxiliary electric systems components and identify worn or defective parts	
		ability to adjust clearances on sensors	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

29.11	Checks batteries visually.	knowledge of types and operation of batteries	
		knowledge of location of batteries	
		ability to identify damage, leakage, corrosion, loose cable connections	
		ability to identify loose, damaged, corroded, missing mounting hardware	
		ability to verify installation and polarity	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

29.12	Load tests battery.	knowledge of battery rating and specifications	load tester, battery charger
		knowledge of load testing techniques and procedures	

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to operate battery load tester	
	ability to interpret results of load test	
	ability to attach and operate battery recharger	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

29.13	Replaces battery.	knowledge of battery replacement techniques and procedures	wrenches, crimping tools, heat shrink gun
		knowledge of battery polarity	
		knowledge of safety hold downs and brackets	
		ability to clean batteries	
		ability to replace hinge or corroded brackets and battery supports	
		ability to make cable connections	
		ability to secure battery	
		ability to replace terminals	
		ability to lubricate terminals and posts	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

BLOCK H HYDRAULIC AND POWER TAKE-OFF (PTO) SYSTEMS

Task 30 Services hydraulic systems and cargo/product pumps.

Trend: No apparent change.

	Sub-tasks	Enabling Objectives	Tools & Equipment
30.01	Inspects hydraulic system.	knowledge of inspection techniques and procedures	pressure gauge, output gauge
		knowledge of hydraulic systems and components	
		knowledge of auxiliary equipment such as hoists, fans, control valves and hydraulic motors	
		knowledge of types and sizes of hoses, lines and connectors	
		knowledge of types and grades of hydraulic oil	
		knowledge of pressure test techniques and procedures	
		ability to verify liquid levels	
		ability to visually inspect system components such as lines, hoses, pumps and motors for leaks	
		ability to pressure test system	
		ability to verify test results	
		ability to clean system to inspect it	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
30.02	Replaces cylinders, fittings, hoses and piping.	knowledge of removal and installation techniques and procedures knowledge of types and sizes of cylinders, fittings, hoses and piping knowledge of testing techniques and procedures knowledge of hydraulic schematic drawings ability to select cylinders, fittings, hoses and piping ability to visually check cylinders, fittings, hoses and piping ability to perform pressure test	hammers, wrenches, air impact wrench, torch, pressure tester

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

30.03	Repairs hydraulic pumps and motors/cargo pumps.	knowledge of pump removal and installation techniques and procedures knowledge of pump and motor operation knowledge of types, sizes and models of pumps and motors ability to select replacement parts ability to perform pressure test	hammers, wrenches, torch, air wrench, pressure tester

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

	Sub-tasks	Enabling Objectives	Tools & Equipment
30.04	Repairs valves (control, check and hydro pack).	knowledge of removal and installation techniques and procedures knowledge of types and sizes of valves knowledge of hydro pack assembly knowledge of pressure testing procedures knowledge of overhaul procedures ability to remove and install valves/hydro pack without damage to hoses, pumps, fittings, lines or pumps ability to apply thread seal to fittings and pipes ability to pressure test for leaks	hammers, wrenches, air wrench, pipe wrench, adjustable wrench, adjustable spanner, pressure tester

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

30.05	Replaces hydraulic tank/reservoir.	knowledge of removal and installation techniques and procedures knowledge of sizes and shapes of tanks/reservoirs knowledge of types and sizes of fasteners ability to select and install fasteners ability to secure fasteners to tank	wrenches, pipe wrench, hammers, adjustable spanner, adjustable wrench, hydraulic jack, safety stand

Sub-tasks					Enabling Objectives						Tools & Equipment	
					ability to align tank/reservoir to mounting bracket							
					ability to select and install lines							
NF	NS	PE	NB		PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes		ND	yes	yes	yes	yes	yes	ND	ND
30.06	Replaces cooling fans.				knowledge of fan removal and installation techniques and procedures						wrenches, screwdrivers, pipe wrench, adjustable spanner, hammers, pressure tester	
					knowledge of types, sizes and speeds of fans							
					knowledge of types and sizes of mounting brackets and/or belts							
					knowledge of cooling fan circuit breaker							
					knowledge of testing techniques and procedures							
					ability to remove and install cooling fan without damage to sensors, circuitry or valves							
					ability to pressure test the fan							
					ability to select and install mounting brackets and/or belts							
NF	NS	PE	NB		PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes		ND	yes	yes	no	yes	yes	ND	ND
30.07	Replaces fluids and filters.				knowledge of types and grades of hydraulic fluids						filter wrench, oil pump, wrenches	

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of types and sizes of filters	
	knowledge of fluid and filter removal and installation techniques and procedures	
	knowledge of disposal procedures for fluids and filters as per regulations	
	knowledge of fluid and filter replacement techniques and procedures	
	knowledge of chemicals and brake fluid flushing techniques and procedures	
	ability to select and install fluids and filters	
	ability to replace fluids and adjust levels	
	ability to flush fluids from system	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

Task 31 **Services power take-off (PTO).**

Trend: No apparent change.

Sub-tasks		Enabling Objectives	Tools & Equipment
31.01	Functionally tests PTO.	knowledge of removal and installation techniques and procedures	hammers, wrenches, output (rpm) gauge, air impact wrench

Sub-tasks	Enabling Objectives	Tools & Equipment
	knowledge of types and sizes of gears and gear ratio requirements	
	knowledge of types and models of PTO units	
	knowledge of PTO operation	
	knowledge of drive power	
	knowledge of testing techniques and procedures	
	ability to recognize type of drive and PTO	
	ability to perform test	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

31.02	Inspects external controls and fasteners.	knowledge of PTO operation
		knowledge of types and sizes of PTOs
		knowledge of specifications for control features
		knowledge of types and sizes of fasteners
		knowledge of inspection techniques and procedures
		ability to recognize defective parts such as cables, solenoids, air lines, wiring, levers, studs, bolts, clamps and pins
		ability to check for oil leaks

Sub-tasks	Enabling Objectives	Tools & Equipment
	ability to check for wear of external moving parts such as levels, cable controls and solenoids	
	ability to select and install fasteners	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

31.03	Disassembles PTO.	knowledge of PTO removal techniques and procedures	hammers, wrenches, pry bar, screwdrivers
		knowledge of PTO operation	
		knowledge of PTO disassembly techniques and procedures	
		ability to disassemble PTO without damage to gears and PTO unit	

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND

31.04	Inspects shafts, gears, seals and bearings.	knowledge of inspection techniques and procedures	micrometers, verniers
		knowledge of specifications for PTO operation	
		knowledge of damage and/or wear characteristics and limits	
		ability to visually inspect shafts, gears, seals and bearings for defects	
		ability to measure shaft sizes for excessive wear	

Sub-tasks				Enabling Objectives						Tools & Equipment	
				ability to check bearings for smoothness							
				ability to check seals and gears for wear or cracks							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND
31.05	Assembles PTO unit.			knowledge of PTO assembly techniques and procedures						hammers, wrenches, pry bar, screwdrivers	
				knowledge of PTO operating conditions							
				ability to assemble PTO without damage to gears and PTO unit							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	no	yes	yes	ND	ND
31.06	Replaces PTO unit.			knowledge of removal and installation techniques and procedures						torque wrench, wrenches, hammers, oil pump	
				knowledge of gear backlash tolerances							
				knowledge of fastening techniques and procedures							
				knowledge of types and thicknesses of gaskets							
				knowledge of torquing specifications, procedures and sequence							
				ability to select and install fasteners							

Sub-tasks				Enabling Objectives							
				ability to select and install spacers							
				ability to align bolt holes with mounting bracket holes							
				ability to select mounting adaptor							
				ability to adjust oil level							
NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

31.07	Replaces PTO components.	knowledge of removal and installation techniques and procedures	hammers, wrenches, torch, gear puller, angle plane, snap-ring pliers
		knowledge of types, sizes and lengths of shafts, chains, belts, pulleys, U-joints and steady bearings	
		knowledge of PTO operating conditions	
		knowledge of types of drive shafts, pulleys, U-joints and chains	
		ability to remove and install drive shaft components without damage to the PTO or ancillary equipment	
		ability to adjust tension of belts and chains	
		ability to align and set drive shaft between the yokes	
		ability to select and install fasteners	
		ability to verify free spinning of bearings and gears	

ability to select and install chains, drive belts, pulleys and gears

NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK
ND	yes	ND	yes	ND	yes	yes	yes	yes	yes	ND	ND

APPENDICES

TOOLS AND EQUIPMENT

adjustable spanner
air compressor
air impact ratchet
air impact gun
air impact hammer
air impact wrench
air regulator
alignment punch
angle plane
anti-lock display unit
arbour press
arc welder
bars - bucking, aligning, spring release, pry, spoon, drop centre
bar clamp
battery charger
bead axe
belt tensioner
block and tackle
braces
brake tester
bucking tool
bucking dolly
buffers
C-clamp
callipers - inside, outside
caulking gun
caustic cleaning tank
chains
chisel gun
chisels - air, electric, hand
cinches
clamps
creeper
crimping tools
cutters - arc air, plasma, thread, tube
cutting pliers
dial indicator
dies
dolly
drills - bench, hand, air, electric
drill presses
drum lathe
electric shears
engine repair stand
explosive proof trouble light
extractors
files
fish tape
flaring tool
fork lift
fuel retrieval and storage systems
gauges - tread wear, universal, cylindrical, drum, adjusting, air pressure, feeler, no-slack, king pin telescoping, tire, rpm output, pressure, connecting rod, small hole gauge
glass bead machine
gouging tip
grease pump
grinders - hand, bench, electric, air
hammers - ball peen, chipping, air impact, rubber, sledge
heat shrink gun
hitch testing equipment
hot air welder
hoists
hydraulic crane
hydraulic jacks and supports
hydraulic porto-power
knife
laser alignment system
magnaflux equipment
micrometers
metal inert-gas (MIG) welder
nut splitting tool
oil pump
oil seal driver

overhead crane
oxy-fuel torch
oxygen tester
pipe plug
pliers
plumb bob
presses - hydraulic,
stationary
propane torch
pulling tools - come-along, gear
punches - hammer, drive, jack,
centre, long, alignment
reamers
regulators
release clamp
rim protectors
rivet gun
riveters
rulers
sandblaster
sanders
saws - power, electric,
cut-off, hack, hole, jig
scaffolding
scrapers
screwdrivers
shrink tube
slings and riggings
snap-ring pliers
soapstone
socket drive sets
sockets
soldering iron
soldering gun
spark lighter
splines
squares
steam cleaner
steel buffer
straight level
straight edge
stretchers
stud remover
tape measure
taps and dye snips
tapstesters - electric, carbon
dioxide, diagnostic, pressure, shrink,
hydrostatic, load, lock, king pin, air
systems
test light
thread inserts
thread files
thread chasers
torque head driver
torque multiplier
trailer supports
Tungsten-inert gas (TIG)
welder
valve core remover
vapour detector
verniers
vices
voltmeters
welding rods
wheel dolly
wheel puller
wire cutters
wire strippers
wire brush
wrenches - adjustable, air
impact, Allen, filter, hand, pipe, torque

Safety Equipment

ear muffs
eye protection
eye wash station
face shields
fire hoses
fire extinguishers
fire blanket
first aid station
gas mask
glasses
gloves
goggles
hand shield
leather gloves
leather apron
leggings
personal protection clothing
protective harness
respirator
safety cage
safety boots
safety signs
shields and guards
welder's helmet

PERCENTAGE RATINGS

BLOCK A **SAFETY**

Task 1 Demonstrates safe working practices and techniques.

BLOCK B **WORK PRACTICES AND PROCEDURES**

	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
%	ND	20	ND	15	ND	8	25	25	30	5	ND	ND	18%

Task 2 Inspects trailer systems.

	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
%	ND	12	ND	12	ND	11	10	1	10	5	ND	ND	9%

Task 3 Interprets information in manufacturers' service manuals and related service materials.

	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
%	ND	8	ND	1	ND	2	10	1	4	1	ND	ND	4%

Task 4 Specifies and services hand, cutting and power tools.

	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
%	ND	8	ND	3	ND	7	10	1	4	1	ND	ND	5%

Task 5 Employs and maintains shop equipment.

	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
%	ND	15	ND	4	ND	3	10	1	4	3	ND	ND	6%

Task 6 Employs and maintains dimensional measuring devices.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	8	ND	1	ND	4	5	1	4	5	ND	ND	4%

Task 7 Operates and maintains oxyacetylene, arc metal inert gas (MIG) and tungsten inert gas (TIG) welding equipment.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	4	ND	13	ND	5	10	15	0	5	ND	ND	7%

Task 8 Inserts fastening and sealing devices, wires and connectors.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	8	ND	7	ND	7	10	1	6	3	ND	ND	6%

Task 9 Isolates electrical/electronic system faults.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	12	ND	20	ND	14	10	1	4	21	ND	ND	12%

Task 10 Complies with government and company policies and procedures, guidelines and standards.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	8	ND	2	ND	14	5	1	4	5	ND	ND	6%

Task 11 Services slider and fixed suspension.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	4	ND	7	ND	8	10	44	12	10	ND	ND	13%

Task 12 Services air suspension systems.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	2	ND	13	ND	8	5	15	12	15	ND	ND	10%

Task 13 Services rubber block suspension system.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	4	ND	2	ND	1	0	1	12	3	ND	ND	3%

Task 14 Services walking beam suspension systems.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	4	ND	6	ND	4	0	1	12	2	ND	ND	4%

Task 15 Services spring suspension system.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	3	ND	9	ND	12	5	16	12	21	ND	ND	11%

BLOCK C BRAKE SYSTEMS

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	25	ND	20	ND	46	15	30	40	20	ND	ND	27%

Task 16 Services braking systems.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	25	ND	30	ND	43	20	35	20	53	ND	ND	32%

Task 17 Services air braking systems.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	20	ND	30	ND	35	35	30	60	20	ND	ND	33%

Task 18 Services camshaft braking system.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	15	ND	15	ND	20	25	30	15	15	ND	ND	19%

Task 19 Services air disc braking systems.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	20	ND	5	ND	2	10	5	5	7	ND	ND	8%

Task 20 Services anti-lock braking systems (ABS).
(NOT COMMON CORE)

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	20	ND	20	ND	0	10	0	0	5	ND	ND	8%

BLOCK D AXLES, TIRES, WHEEL HUBS AND RIMS

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	5	ND	30	ND	10	10	5	8	7	ND	ND	11%

Task 21 Services axles and wheel hubs.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	50	ND	67	ND	40	40	95	90	66	ND	ND	64%

Task 22 Services tires and wheel rims.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	50	ND	33	ND	60	60	5	10	34	ND	ND	36%

BLOCK E COUPLING UNITS AND LANDING GEAR

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	10	ND	8	ND	6	5	19	5	35	ND	ND	13%

Task 23 Services coupling units (fifth wheel, turn table, hitches).

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	50	ND	60	ND	53	60	53	80	57	ND	ND	59%

Task 24 Services landing gear.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	50	ND	40	ND	47	40	47	20	43	ND	ND	41%

BLOCK F COOLING AND HEATING UNITS

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	5	ND	2	ND	6	10	1	5	3	ND	ND	5%

Task 25 Services heating and refrigeration units.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	50	ND	70	ND	25	70	100	90	67	ND	ND	67%

Task 26 Services propane heaters.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	50	ND	30	ND	75	30	0	10	33	ND	ND	33%

BLOCK G TRAILER BODIES

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	20	ND	20	ND	7	20	15	5	20	ND	ND	15%

Task 27 Performs general trailer repairs.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	40	ND	40	ND	46	35	50	40	65	ND	ND	45%

Task 28 Performs tanker repairs.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	20	ND	40	ND	1	25	1	20	13	ND	ND	17%

Task 29 Services electrical systems.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	40	ND	20	ND	53	40	49	40	22	ND	ND	38%

BLOCK H HYDRAULIC AND POWER TAKE-OFF (PTO) SYSTEMS

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	15	ND	5	ND	17	15	5	7	10	ND	ND	11%

Task 30 Services hydraulic systems and cargo/product pumps.

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	50	ND	55	ND	75	80	50	60	94	ND	ND	66%

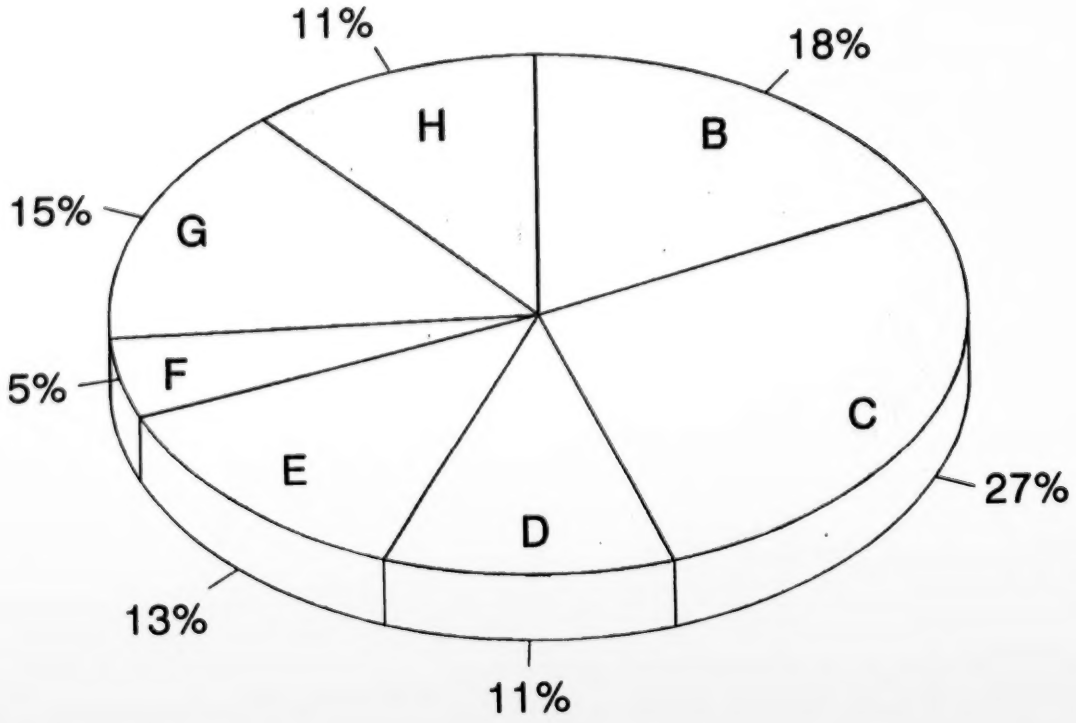
Task 31 Services power take-off (PTO).

%	NF	NS	PE	NB	PQ	ON	MA	SK	AB	BC	NT	YK	Nat. Avg.
	ND	50	ND	45	ND	25	20	50	40	6	ND	ND	34%

BLOCK PERCENTAGES

BLOCK PERCENTAGES*

Truck-Trailer Repairer



* The average time a worker spends performing each block in a given year in relation to other blocks of the analysis, taking into consideration the complexity (importance plus difficulty) of the block.

TITLES OF BLOCKS

A	SAFETY**
B	WORK PRACTICES AND PROCEDURES
C	BRAKE SYSTEMS
D	AXLES, TIRES, WHEEL HUBS AND RIMS
E	COUPLING UNITS AND LANDING GEAR
F	COOLING AND HEATING UNITS
G	TRAILER BODIES
H	HYDRAULIC AND POWER TAKE-OFF (PTO) SYSTEMS

** Since safety practices are a mandatory feature of all occupations, they are considered common core, ratings are not required and thus Block A does not appear on the chart.